A Framework for outsourcing Facilities Management Services in Nigeria's Public Hospitals

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ABSTRACT

Literature has established FM as a global business model that continues to explore how organisation can grow faster through expansion into new markets, find new ways of fostering innovation through collaborative outsourcing that will achieve right balance between the decision to outsource, risks and legal requirements embedded in the service level agreement (SLA) between client organisations and their FM outsourcing vendors. The study aims to develop and test a framework for outsourcing facilities management services using data from Nigeria's public hospitals. The specific objectives are among others; to determine a set of key factors that influence the decision to outsource facilities management services in public hospitals; to conduct an empirical survey of facilities management services outsourced in public hospitals; to access the satisfaction of users of outsourced FM services and model the satisfaction of users on quality of outsourced facilities management services using SEM; and assess the probability and severity of risks associated with outsourcing of facilities management services in public hospitals.

Data for this study were collected using a cross sectional 2-strand questionnaire survey and case study. During the first strand of questionnaire survey, a total of 85 responses were received from the six states comprising the study area while 11 of them were discarded due to missing data resulting in 74 usable responses. This gave an overall response rate of 45.4%. A total of 246 survey responses were received during the second strand of questionnaire survey. Of these, 38 were not fully completed and therefore discarded leaving 208 as usable responses. This resulted in an overall response rate of 25.1%. The case study component involved semi-structured interview section with 4 participants representing 4 cases (3 hospitals and 1 FM organisation).

Findings revealed that 25 of the 31 factors were significant in explaining the decision to outsource FM service in Nigeria's public hospitals; while 15 of them grouped into 5 broad categories were recommended for framework construction based on their factor loadings during analysis. Also, 6 facilities management services including plant management and repairs; general cleaning services; waste disposal and environmental management; landscape maintenance; security; and catering/restroom management are completely outsourced in all the 74 hospitals. Findings additionally revealed that service quality in relation to catering, plant maintenance, waste management, security, landscape maintenance, and cleaning services received very high satisfaction ratings from respondents. Findings also established 24 out of the 35 risk factors as critical, 4 factors as somehow critical, and 5 factors as not critical. Besides, 9 risk factors were selected based on their factor loadings from PCA to develop the outsourcing framework.

Drawing on theoretical analysis and input from the questionnaire survey and case study, an outsourcing framework comprising 4 components was developed to assist public hospitals administrators achieve sustainable best practice resource management. It is recommended among others that further research be conducted to develop standardised criteria for vendor selection processes.

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ACRONYMS AND ABBREVATIONS

ACT	Agency Cost Theory
ADF	Asymptomatic Distribution Free
AMOS	Analysis of Moment of Structures
ANOVA	Analysis of Variance
ARCOM	Association of Researchers in Construction Management
CFA	Confirmatory Factor Analysis
DEMATEL	Decision Making, Trial and Evaluation
EFA	Exploratory Factor Analysis
FM	Facilities Management
GLS	Generalised Least Square
HWU	Heriot Watt University
IAOP	International Association of Outsourcing Professionals
ICT	Information and Communication Technology
ICCREM	International Conference on Construction & Real Estate Mgt
IFMA	International Facilities Management Association
ISO	International Standards Organisation
IT	Information Technology
KBT	Knowledge Based Theory
KMO	Kaiser Mayer Olkin
MLE	Maximum Likelihood Estimating
NCAA	Nigerian Civil Aviation Authority
NEPA	National Electric Power Authority
NHS	National Health Service
NNPC	Nigerian National Petroleum Corporation
NPC	National Population Commission
PCA	Principal Component Analysis
PHCN	Power Holding Corporation of Nigeria
RDT	Resource Dependency Theory
SBS	Service Balanced Scorecard
SERVPERF	Service Performance Model
SERVQUAL	Service Quality Model
SLA	Service Level Agreement
SPSS	Statistical Package for Social Sciences
SQSM	Service Quality Satisfaction Model
TCT	Transaction Cost Theory
TFM	Total Facilities Management
UAE	United Arab Emirate
UK	United Kingdom
UN	United Nation
UNGA	United Nation General Assembly
WHO	World Health Organisation
WLS	Weighted Least Squares

CHAPTER ONE

GENERAL INTRODUCTION

This general introduction outlines the context in this thesis by developing a background to the study and research problem statement. It then defines the main aim and objectives as well as research questions logically flowing out from the research problem. Thereafter, justification and scope of the study, and a brief introduction of research methodology adopted are discussed before the chapter concludes with an overview of the organisation of this thesis.

1.1 Background

Outsourcing has become one of the most researched areas in management studies due to its rising profile as a management strategy for improving performance. According to the International Association of Outsourcing Professionals (IAOP), the global outsourcing industry is presently worth over $1 trillion annually with India capturing a lion share of the market (IAOP Global Outsourcing 100, 2011).

Outsourcing is a procurement option that involves the "contracting-out" of services that were previously performed in-house to an external service provider as a means of increasing organisational efficiency and effectiveness (Steane and Walker, 2000; Monczka *et al.,* 2005). It is a strategy that many public sector agencies are embracing as a way of improving value for money in providing public services. The clamour for change in the ways public resources are managed is not of recent origin. Since the mid-1980s, the so called vertical integration philosophy and service praxis of public administration have given way to the notion of a public service that should provide "value for money" (Kakabadse and Kakabadse, 2001). Thus, the current economic globalisation and competition as well as growing demand for accountability and improved personal and community service have pushed public organisations to devise innovative solutions to complex social problems by acting more like market driven enterprises. Findings from previous surveys (Kakabadse and Kakabadse, 2001) gave four main reasons for the growing popularity of outsourcing among public service organisations: to achieve best practice, to improve cost discipline skills of public service managers, to improve the quality of service, and to help managers focus more clearly on the core competences of the organisations.

The Millennium Development Goals (MDGs) adopted at the beginning of the new millennium in the year 2000 was a revolutionary attempt to tackle the magnitude of problems facing mankind. Such problems include but not exclusively war, genocide, racism, food insecurity, rising HIV and debt burden, increasing maternal and child mortality (Lee *et al.*, 2004; Annan, 2006; Enabudoso *et al.*, 2006). All of these have great health implications which underscores why 3 out of 8 goals, 8 out of 18 targets, and 18 out of 48 indicators relate directly to health (UN, 2000; WHO, 2007). Plausibly, this is because a healthy population and indeed work force are indispensable tools for rapid socio-economic and sustainable development of any nation (Ogaboh *et al.*, 2010). Many countries have embraced the use of outsourcing as a way of providing public services for the public good particularly in the health sector. Sarpin and Weideman (1999) are of the view that public health care institutions are turning to outsourcing in an effort to maintain high standard of care and reduce cost of health provision while addressing economic realities. In this same vein, the extent of use of outsourcing in healthcare has been widely investigated in USA (Gardner, 1991; Solovy, 1998; Wholey *et al.*, 2001; Lorence and Sink, 2004; Nicholson, 2004), in UK (Mark, 1994; Smyth, 1998; Heavisides and Price, 2001; Riley, 2001), in New Zealand (Cameron, 1998; Renner and Palmer, 1999), in Canada (Chow and Heaver, 1994; Rivard-Royer *et al.*, 2002) , and Greece (Moschuris and Kondylis, 2006). The general conclusion from these studies indicate that healthcare organisations outsource a variety of services ranging from specialist services, logistics services and facilities management services. It also indicate that major benefits from outsourcing of these services are improved performance, cost savings, increased focus on core business and improved quality of service.

In an effort to address the precarious and dismal situation in the health sector, Nigeria as a signatory to the United Nation's (UN) millennium development goal on health has over the years adopted various health care reforms to achieve this goal. It included the establishment of the National Economic Empowerment and Development Strategy (NEEDS), the National Action Committee on Aids (NACA), the National Agency for Food and Drug Administration (NAFDAC), and of recent the National Health Insurance Scheme (NHIS) (Enabudoso *et al.*, 2006). Despite these efforts, the provision of quality, accessible and affordable health care have continued to pose a daunting challenge (WHO, 2007a; Oba, 2008; Omoruan *et al.*, 2009). On individual bases, several hospitals and health care institutions in the country have embraced

outsourcing in order to gain access to some of its perceived benefits as a strategy for improving service delivery. Some of the services outsourced include some of its specialist clinical services, non-clinical services and functions. A conspicuous component of the services outsourced in hospitals is the facilities management services. They are the services that support the core functions of hospitals. For instance, it is not about "the principles and practice of surgery operation" in a clinical theatre, but the provision of an "enabling environment for an efficient surgery operation". These may include such services as cleaning of the surgery theatre, constant maintenance of the surgery equipment, and training of the personnel to handle the equipment.

Over the years, facilities management has grown from what was traditionally perceived to be mere managing of buildings or maintenance unit of an organization to the holistic reality of being woven into the core and support services of organizations (Price *et al*., 2011) making it one of the most outsourced components in particularly public sector organisations (Ikediashi *et al.,* 2012a). In other words, the more developed view of facilities management is an integrated approach to management of building/infrastructure (product) and services of an organization in order to create an environment that supports the primary objectives of that organization (Nutt, 2004). In their contribution, Pitt and Tucker (2008) define facilities management as the integration and alignment of the non-core services, including those relating to premises, required to operate and maintain a business to fully support the core objectives of the organisation. This study entirely agrees with this assertion which views FM from the perspective of a non-core support service. This was earlier supported by Chitopanich (2004) who argued that the primary function of FM is to handle and manage support services to meet the needs of an organization, its core operations and employees. In other words, it is a support function coordinating physical resources and workplace, and support services to user and process of works in order to support the core business of an organization, the author concludes. In an effort to develop a synchronized list of FM services, Chitopanich (2004) after reviewing a list of support services within the FM remit, evolved a cluster of support services that can give a generic scope of FM services. It is made up of five main components namely real estate and property management, maintenance and repairs, office services, space planning and management as well as employee supports and services.

This study argues that FM as part of the global business model has continued to explore how organisation can grow faster through expansion into new markets, find new

ways of fostering innovation through collaborative outsourcing that will achieve right balance between the decision to outsource, risks and legal requirements embedded in the service level agreement (SLA) between client organisations and their FM outsourcing vendors.

Within the context of hospital management, FM has continued to live by its definition of creating the right enabling environment that supports the core mandate of rendering clinical and medical diagnostic services; which is why Shohet and Lavy (2004) considered healthcare FM as one of the key elements for the successful delivery of healthcare services. Essentially, one can contend that FM adds value to hospital through achievement of zero defects in the hospital's physical operations, especially in very delicate areas where very minute problems can have huge and devastating consequences and could be a matter of life and death. Other areas in which FM adds value to healthcare delivery in hospitals include management of infrastructure facilities such as estate and property, indoor air, structure and fabric, water supply, electricity and telecommunication management referred to as hard FM; and catering, cleaning, waste management, security and laundry services described as soft FM (Liyanage and Egbu, 2008).

This study therefore develops a mechanism for outsourcing facilities management services in Nigeria's public hospitals as a way of ensuring sustainable resource management and healthcare delivery in the face of growing clamour for health institutions to deliver even when constrained by inadequate resources.

1.2 Statement of the Research Problem

Recent health policy debates in both developed and developing nations have been triggered by a strong conviction that favours a trend towards privatisation, involving the introduction of market mechanisms within the public health system. This is attributable to several reasons. According to Mills and Broomberg (1998), there is an emergence of new trends in public sector management that supports the use of private sector mechanisms as a solution to many of the problems faced by public sectors in many countries of the world (Walsh, 1995; Moore, 1996). Secondly, there has been accumulating evidence of failure of health care systems worldwide to meet key objectives of efficiency, equity and responsiveness to users and communities (Birdsall and James, 1992; World Bank, 1993; Mills, 1995). Other factors adjudged to have influenced the use of outsourcing in health care delivery are growing demands for the

extension of customer care and influence, and increasing tension between limited resources and increasing demands on health care systems (Robinson and Lee 1995; Mills and Broomberg, 1998). Additionally, health care institutions such as hospitals are outsourcing as a possible response to demands created by such factors as market pressures, requirement of managed care organisations, and its suitability for facilitating flexibility at a time when change seems to be the only constant (Edum-Fotwe *et al.*, 2003; Moschuris and Kondylis, 2006).

This study notes however that even though outsourcing is one of the most researched areas in management studies, its impact on facilities management services provision in public hospital setting of a developing economy like Nigeria is largely unclear. This is because although a wide range of services are being outsourced in Nigeria's health institutions notably hospitals in response to the emerging trends outlined above, there has been no comprehensive empirical based research reported in the literature to provide insights into such a relatively evolving and important concepts as outsourcing and facilities management in Nigeria's public sector hospitals. This is surprising since available statistics indicate that there are more than 106, 0000 beds and over 13,000 public hospitals operating in Nigeria (Ademiluyi and Aluko-Arowolo, 2009) while the use of outsourcing is reported to have been stepped up as a result of government's initiative to address problems bedevilling the public sector institutions generally. Specifically, there are plausible concerns that in trying to cope with distractions arising from gross shortage of personnel (WHO, 2007a), inadequate and outdated medical equipment (Yohesor, 2004; Johnson and Stoskopf, 2009), poor funding (WHO, 2007b), policy inconsistencies (Omoruan *et al.*, 2009), Nigeria's public hospitals are not adequately equipped with the necessary best practice mechanisms to guide them in making right decisions regarding outsourcing of services while taking into consideration the likely risks that may be associated with such outsourcing transactions.

This therefore underscores the need for this research which is to make facilities management services delivery sustainable in our hospitals. In specific terms, this study proposes to address this by first identifying the drivers of outsourcing and then conduct an empirical survey of facilities management services being outsourced in the hospitals. It then assesses users' satisfaction of outsourced facilities management services in hospitals. The study then assesses the risks involved and uses the outcome of these

investigations to develop an integrated process model for outsourcing facilities management services provision in public hospitals.

1.3 Research Questions

The pertinent question for this study therefore is: *Why are public hospitals choosing to outsource facilities management services and what level of significance was attached to the risks involved?*

In order to address the above question, the research addresses the following sub-questions raised by the study:

- What are the factors that influence the decision to outsource facilities management services?
- What are the facilities management services being outsourced by the public hospitals?
- What are the critical risk factors that may be associated with outsourcing transactions in these hospitals?
- What is the perception of users on the quality of services rendered by vendors in the hospitals?
- What mechanism can best integrate decision support and risk management model for outsourcing facilities management services in the hospitals?

1.4 Aim and Objectives

The aim of the study is to develop and test an integrated framework for outsourcing facilities management services with a view towards improving facilities management services provision in public hospitals. The proposed framework integrates key constructs of decision support system and risk management tool into an amalgamated framework for outsourcing facilities management service provision. The research therefore aims to achieve the following specific objectives, namely to:

1. determine a set of key factors that influence the decision to outsource facilities management services in public hospitals;
2. conduct an empirical survey of facilities management services outsourced in public hospitals;
3. assess the satisfaction of users of outsourced FM services and to model the satisfaction of users on quality of outsourced facilities management services;

4. assess the probability and severity of risks associated with outsourcing of facilities management services in public hospitals;
5. use the outcome of the four objectives above to develop and test a process model for outsourcing facilities management services in public hospitals.

1.5 Justification for the Study

Outsourcing is a strategic management option that has the potential to improve organisational efficiency and effective management of resources as well as increase users' satisfaction about quality of services in hospitals. It is therefore worthy of research efforts.

Theoretically, the study is justified in that lessons drawn from this research will aid in developing a body of knowledge on outsourcing of facilities management services in Nigeria. This is based on the fact that most research to-date on outsourcing and facilities management focus primarily on the experiences of developed countries in Europe, United States and Asia. Furthermore, most of the current literature on the two concepts in Nigeria is preliminary and pedagogic in nature addressing issues such as definitions, scope and tools (Ojo, 2002; Opaluwa, 2005; Mbamali and Adebayo, 2006), while the literature on health services have been mainly about problems and challenges of health care delivery (Enaduboso *et al.*, 2006; Ogaboh *et al.*, 2010; Osazuwa-Peters, 2011; Abdulraheem *et al.*, 2012). Durodola (2009) thesis was lucid and addressed the management of hotel properties in Nigeria from the facilities management perspective. The study gave an insight into the extent of application of facilities management principles and established the benefits and probable challenges against holistic adoption of facilities management principles. However, it stopped short of investigating its practice in other sectors of Nigeria's economy and more so, concentrated on the southern part of Nigeria. Efficient health care delivery is the bedrock of any society's wellbeing and the hospitals remain at the driving seat. Developing mechanisms that will add value to the ways resources are managed in the hospitals is a major justification for the study. Besides, the two concepts are relatively new in Nigeria and the need to assess and unravel the local content, realities and risks with a view to adding to the pool of literature in addition to conducting detailed empirical investigation on the subject matter based on Nigerian experience is another source of motivation behind the study. The justification for this study is also further boosted by the fact that the knowledge gathered from this research will immensely assist government and stakeholders alike in

the establishment and possible enactment of relevant laws, regulations and guidelines in the development of efficient framework for outsourcing and facilities management practice in Nigeria.

The study contained in this thesis contributes to **practice** by identifying factors associated with high levels of performance that stakeholders in health care should consider while making outsourcing decisions as regards facilities management services provision in hospitals. The study in addition points to the fact that risks exist in any relationship, formal or informal and in particular relationships between clients (public hospitals) and vendors (service providers). Therefore the outsourcing outcomes are not automatically assured, unless the risks are either properly assessed before commencement of outsourcing transaction or effectively managed during the execution stage. Specifically, this study identifies the risks factors likely to be associated with outsourcing of facilities management services in Nigeria's public hospitals and assesses the criticality of the identified risks with a view towards assisting stakeholders in making informed rational decision about whether to outsource or not given the criticality of the risks. Also the outcome of this study will assist hospital management authorities to assess the feelings of users of its services about service quality. Finally, the study develops a framework (process model) that incorporates both the decision model and risk management model into an amalgamated framework which will enable stakeholders maintain healthy relationships through the process of negotiations and conflict resolutions and eventual reduction of costs. Besides, where there is a possibility for vendors' opportunistic behaviour, relationship and trust building measures, the dos and the don'ts built into the framework can reduce friction, uncertainty and risk. Through the framework also, vendors can know in more detail the expectations of their clients by understanding their relationships and the trust built can provide the platform for better negotiations with clients if and when needed.

1.6 Scope of the Study

The scope of this research is restricted to public hospitals within the south-south geo-political zone of Nigeria. The states are Akwa Ibom, Bayelsa, Cross River, Delta, Edo and Rivers. The scope has been restricted to the zone due to funding and time constraints. Nigeria is a large country covering 923,800 square kilometres with difficult terrains. A study of the whole country would have been very good but it requires a huge sum of money and a great deal of time schedules which in this case is not sufficient.

There are several specialist services that take place in a hospital. This study is limited to facilities management services in public hospitals. They are the services that support the core activities of a hospital. A detailed explanation of the services constructs used for this study is in chapter five of this thesis.

Besides, it would have also been appropriate to address the impact of outsourcing on facilities management services in all public institutions. However, this is unrealistic as it would have merely resulted in generalized and shaky conclusion which may lead to varied implications arising from inadequate understanding of the concepts being investigated and possible ambiguity in research findings. A study fully devoted to public hospitals would afford the researcher a more concentrated work in a grossly under-researched area in Nigeria (outsourcing and facilities management) and a vital component of the nation's economy (health care), thereby ensuring homogeneity of data. A follow-up research could be conducted later to test the robustness and exposure of the outcome of this study (outsourcing framework) in other public sector organisations.

Furthermore, there are so many hospitals in Nigeria cutting across public and private. It is not possible considering all the limitations outlined above to cover all the hospitals. This explains why the research focuses on public (state and federal) hospitals who in any case, even though make up 65% of the nation's hospitals (Ademiluyi and Aluko-Arowolo, 2009) but have a controlling share of approximately 92% of patient population in Nigeria's hospitals. However the homogeneity of the structure and running of public hospitals in Nigeria means that the outcome of this research can be generalised to all hospitals.

1.7 Research methodology

Data for this study was collected using a cross sectional questionnaire survey and case study. This flowed from the research philosophical underpinning as a pragmatic research. The approach was considered most appropriate because it places the research problem as a central theme and applies all approaches (both qualitative and quantitative) to get a proper understanding of the subject being investigated (Creswell, 2009). Accordingly, the questionnaire survey component was carried out in two strands using two sets of structured questionnaire. The first was structured to cater for questions relating to objectives one and two, and aimed to answer questions on outsourcing decisions and outsourced services in the sample hospitals. The second which is the

general questionnaire, was designed for users of the services in the hospitals and addressed questions relating to objectives three, four and five aimed at soliciting questions about impact of outsourcing on service delivery of the facilities management services currently being outsourced in the hospitals, the perception of users on quality of outsourced FM services, as well as the probability and severity of risks associated with outsourcing.

During the first strand of questionnaire survey, a total of 85 responses were received from the six states comprising the study area while 11 of them were discarded due to missing data resulting in 74 usable responses. This gave an overall response rate of 45.4%. A total of 246 survey responses were received during the second strand of questionnaire survey. Of these, 38 were not fully completed and therefore discarded leaving 208 as usable responses. This resulted in an overall response rate of 25.1%. The case study component involved semi-structured interview section with 4 participants representing 4 cases (3 hospitals and 1 FM organisation).

All the usable responses of the questionnaire survey were coded and analysed descriptively and inferentially using the Statistical Package for Social Sciences (SPSS) PASW version while Analysis Moment of Structures Software (AMOS) was used to analyse some of the hypothesized models. Data from qualitative interview were primarily analysed using narrative techniques by discussing themes, sub-themes and interconnecting themes through a chronology of events as in grounded theory.

1.7 Organisation of the Thesis

The thesis is structured to reflect the research direction as enunciated earlier and to address the stated aim and objectives of the research. Accordingly:

Chapter one provided an overview of the research background, statement of the research problem, aim and objectives, justification for the study, study scope and an overview of the research methodology.

Chapters two, three, and four present an extensive review of extant literature on three streams of enquiry underlying the research. Chapter 2 discusses the definition, emergence, and theoretical perspectives on facilities management. It also outlines the components of facilities management services, and describes service quality indicators, and service level agreements for facilities management services. Chapter 3 describes

outsourcing as a sourcing strategy for facilities management using definition and theoretical perspectives. It also outlines outsourcing from the context of outsourcing decision, outsourcing risk, outsourcing practices as it relates to health organisations, and reviews some framework for outsourcing from past studies. Chapter 4, which is the last of literature review chapters, presents a comprehensive review of public sector organisation from Nigeria's perspective. Specifically, it discusses what constitutes public sector organisation, its theoretical perspectives, Nigeria public health care system and a brief history of Nigeria. Finally, a general summary of key findings from literature is presented. Figure 1.1 presents chapter framework for the literature review.

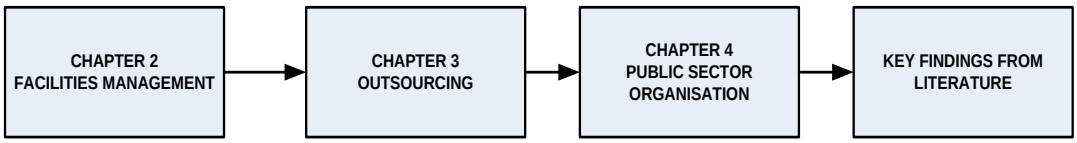

Figure 1.1: Chapter framework for literature review

Chapter five discusses the various theoretical frameworks for the study and the conceptual framework that defines how all identified variables from the theoretical framework are connected to achieve the research objectives.

Chapter six focuses on the research methodology. It specifically presents the philosophical underpinning behind this research, a brief description of the research approach, strategies, and design that flowed from the research philosophy, and the methods and techniques (data collection and analytical processes) that fit the design.

Chapter seven focuses on data analysis and discussion of results that emanated from the two strands of questionnaire survey. The first strand targeted management staff in public hospitals and was conducted between July and September, 2012, while the second strand targeted the general users of FM services in the sample hospitals and was conducted between March and April, 2013.

Chapter eight presents the results and analysis of series of interviews conducted on four cases to gain a deeper understanding of outsourcing practices in the hospitals with particular emphasis on facilities management services and to serve as triangulation to findings from the questionnaire survey.

Chapter nine presents details of the framework developmental phases and procedures adopted to validate it. Key components of the chapter include a brief description of the concept of the framework, methodology adopted for constructing the framework, description of phases of the framework and validation procedures.

Chapter ten presents a summary of main findings from this novel research, including how the aim and objectives of the study were achieved, and a review of the published papers and their relevance to this research. Reflecting back on the research process, this chapter also focuses on the main implications of the study as well as a number of recommendations including recommendations for further research.

CHAPTER TWO

FACILITIES MANAGEMENT

2.1 Introduction

This chapter discusses the concept of facilities management (FM) and its theoretical foundations in more detail. First, section 2.2 focuses on definitions of facilities management from past studies while section 2.3 presents trends in FM practice. This is then followed in section 2.4 by trends in FM practice and FM functions in section 2.5. The theoretical bases underlying the concept are then explained in section 2.6 while section 2.7 focuses on sourcing strategies for FM functions. Section 2.8 focuses on service quality indicators for FM services by describing the place of service quality in organisational performance, and how the inclusion of service level requirements in the service level agreement between a client and its vendor can impact on the outcome of outsourcing for FM services. Chapter summary is then presented in section 2.9.

2.2 Definitions of Facilities Management

Facilities management as an emerging profession has been described by Yiu (2008) as one faced with a serious identity crisis. This is because there seem to be no consensus yet on what could be regarded as a clear and acceptable definition of facilities management. Instead, many of the definitions provided by authors shows widespread variance on the understanding of what facilities management is, how it operates and to what extent it offers sustainable opportunities for businesses (Noor and Pitt, 2009a). A few of the definitions commonly cited in the FM literature is as follows:

According to Becker (1990),

"FM is responsible for co-ordinating all efforts relating to planning, designing and managing buildings and their systems, equipment and furniture to enhance the organization's ability to compete successfully in a rapidly changing world."

The definition by Nutt (2000) provides that:

"The primary function of FM is resource management, at strategic and operational levels of support. Generic types of resource management central to the FM function are

the management of financial resources, physical resources, human resources and the management of resources of information and knowledge."

While Barrett and Baldry (2003) define facilities management as:

"An integrated approach to maintaining, improving and adapting the buildings of an organisation in order to create an environment that strongly supports the primary objectives of that organization."

On its own part, IFMA (2007) defines facilities management as:

"The practice of coordinating the workplace with the people and work process of the organisation; integrating the principle of business administration and the behavioural and engineering sciences."

Atkin and Brooks (2009) define facilities management as:

"An integrated approach to operating, maintaining, improving and adapting the building and infrastructure of an organization in order to create an environment that strongly supports the primary objectives of that organization."

Many of these definitions ascribe to the fact that facilities management is about integrating people, process and place modelled in figure 2.1.

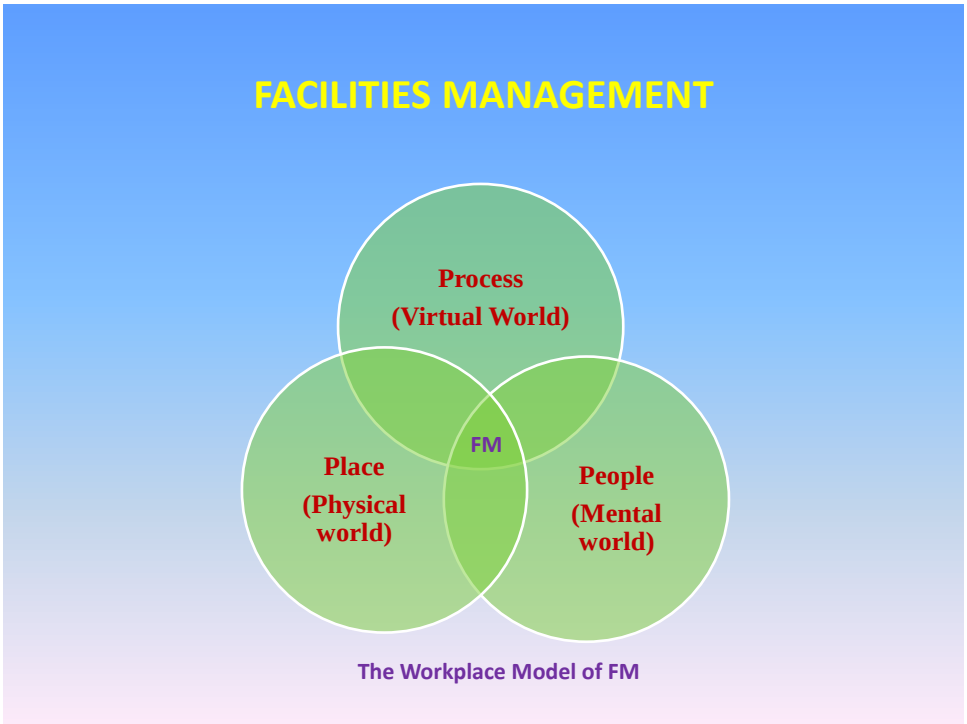

Figure 2.1: Workplace Model

However, in an effort to bring together all the foregoing definitions, Tay and Ooi (2001) made a very objective review of the definitions by proposing what Noor and Pitt (2009a) call a widespread theme that threads facilities management identity. In it, Tay and Ooi (2001) summarises facilities management identity as;

- That which focuses on the workplace, the workplace being a place where work of any nature is carried out; be it commercial, private or public building.
- That which is applicable to all organizations because they occupy a place for their work.
- That which places a supporting role to enhancing the performance of a firm
- That which requires an integrated approach is required in its practice

The authors then describe facilities management as: *"An integrated management of the workplace to enhance performance of an organization."*

In so much as the definitions above have provided a broad spectrum on what FM is, they have so far failed to acknowledge the strategic aim of facilities management in providing social service to the community. In a study on "service delivery approach to measuring facility performance in local government", Brackertz and Kenley (2002) developed a model called the service balanced scorecard (SBS). This model was among others, designed to determine and measure how well facilities deliver social service to

its surrounding community in line with government's objectives. In other words, it is not merely a tool that measures performance in building related terms, but also provides the government with the metrics that are reflective of facilities' service function to the people and therefore a means of making accountable decisions. The performance of an organization (public or private) must therefore be seen in the context of service delivery for the public good.

From the above, it is clear that there are many definitions of facilities management. In other words, literature shows a lack of consensus on appropriate definition for facilities management. However for the purpose of this study, a modified version of Tay and Ooi (2001) is adopted as:

> '*The integrated management (operational, tactical and strategic) of the workplace to enhance the performance including service delivery of FM services of the organization both public and private for the ultimate benefit of the organization and the community that benefit the service'.*

This study is however mindful of the fact that, according to Waheed and Fernie (2009), any rigid definition of FM will prove to be only partially and temporally relevant since the discipline is still evolving.

2.3 Trends in Facilities Management practice

The concept of facilities planning and development dates back to 1950s when Dwight D. Eisenhower launched the federal interstate highway system in America, which expectedly heralded an unprecedented wave of residential and commercial development in the then undeveloped America (Starner, 2004). However, facilities management as it is known today dates back to the 1980s when the railway companies in USA conceived the idea of providing facilities-related services as opposed to providing buildings (Atkin and Brooks, 2000). Ever since then, it has witnessed tremendous global transformation entering Europe in the mid 1980s first in UK in 1984, the Netherlands in 1986, the Scandinavian countries in 1992 and Germany in 1995 (Levainen, 1997). As a follow up to this, a non-profit organization called International Facilities Management Association (IFMA) was established in the early 1980s to incorporate associations dedicated to serving the FM profession originally in North America; but as of today has members represented globally in over 60 countries worldwide (Ventovuori, 2007) including Nigeria where it offers guidance and expertise

to its members, as well as carrying out research to substantiate best practice in facilities management (Adewunmi *et al.,* 2008).

Since its formation, FM is said to have transformed from mere janitorial services to becoming an integral part of the boardroom management. Accordingly and in line with the trends, FM practice is now distinguished into two purposes namely short term operational FM and longer term strategic FM. Short term operational level, described as the most visible part of FM involves day-to-day provision of safe and efficient working environment for an organisation core business activities to thrive (Nutt, 1999). It involves such services as cleaning, provision of security services and other janitorial services. Strategic FM on the other hand manages and coordinates work environment and support services in such strategic areas as property asset management, strategic property decision and facilities planning and development, all related to policy and strategic action plan of an organisation. From the business model perspective, Pitt and Hinks (2001) contend that FM is often seen as the management of cost-efficiency rather than as a method of achieving the multi-dimensional enhancement of business competitiveness. They therefore argue that existing organisational structures negates the integration of functional and strategic dimensions of FM and must be dismantled to incorporate facilities managers into strategic management through subordination to strategy as opposed to management.

Regarding structure of FM process, Barrett and Baldry (2003) developed a model of 5 organisational structures that has evolved over the years of facilities management practice. The first category, *Office manager model* involves a part time assignment of a facilities manager as part of general duties. The person who may not be technically oriented or actively involved in the core function of the organisation oversees occasional facilities functions and repairs as the need arises. It was popular in the early stages of FM and suitable for small organisations. *Single site model* is popular in organisations in one locality but able to create a separate FM unit responsible for management of its assets. The organisation uses both in-house team and service providers to execute its functions. The model is common with middle size organisations such as manufacturing plants and independent retail outlets. *Localised site model* is common in organisations with facilities in different locations coordinated from one site headquarter office. A distinct feature of this model is the decentralisation of operations allowing smaller sites to take some certain level of decision while major policy decisions are taking at the central management level. *Multi sites model* operates a

system of multiple locations spread across several geographical locations within the same nationality but however performing similar functions in each location through a dedicated FM office while its activities are coordinated at the strategic level. It is suitable for large organisations with large national and international spread such as hospitals (NHS in UK for instance), multinational companies and major banking institutions. The fifth category is the *International model.* It is similar in many respects to the multi sites model but operates across different countries. It does this through partnering with off shoring outsourcing vendors who have the requisite knowledge and ability to integrate properly in terms of language and legislation with concerned countries.

To also buttress the changing face of FM, Jensen (2008) carried out an explorative case study on the origin and constitution of FM as an integrated corporate function using Danish Broadcasting Corporation's 80 years existence as a corporate function. The study shows a patterned growth of the corporation's FM unit from an ordinary administration office that coordinates all service and building related functions in 1951 to becoming one integral unit for administration office matters and building coordination activities. In conclusion, Jensen (2008) stated that "the development clearly shows the need for a coherent strategic planning of the development of the corporation and corporate facilities. This is important both for the corporation to achieve its objectives and for the FM function to act proactive and professional. This implies that building client function in general should be an integrated part of the FM function." It is equally said that integration of FM function was established to make the organisation more customer oriented and to reduce cost which are hallmarks of outsourcing.

Moore and Finch (2004) study on the state of FM practice in South East Asia discovered that FM is said to be establishing itself within the region although with varying degrees of success. The authors concluded by identifying several drivers of FM in the region. These include globalization, information technology, high cost of space, labour costs, regional economy, property market, general business environment, market maturity and procurement systems. It must be pointed that, China having overtaken Japan as world second largest economy stands out as a promising market for FM in the region. Indications from the world's largest economy, the United States shows a gradual and systematic decline in the state of FM profession. According to Sullivan *et al.,* 2010, the FM industry in US is currently at risk. They based their conclusion on; first,

existence of insufficient empirical data to validate the generally accepted perceptions of the current state of FM practice; and second, majority of the current FM workforce comprise of older age professionals that will soon be retiring with insufficient volume of new entrants being recruited to fill the vacuum.

FM practice in Nigeria has seen a steady growth in recent years with a wide range of applications (Opaluwa, 2005). What obtains in Nigeria at a particular time years ago (Alaofin, 2003) is that different firms provide single components of the typical services under FM. These component services and the firms that provide them vary significantly in terms of sophistication, customer acceptance and market awareness/development. According to Aloafin (2003), this in turn affects industry maturity, health, structure/complexity, size, depth and number of players. The oldest and perhaps the biggest component of FM service in Nigeria in terms of market size is the janitorial services with over 5 decades old (Aloafin, 2003). It is acknowledged that the spread of FM vocation from the US and Europe into Nigeria has been encouraged partly by globalization (Adewunmi *et al.,* 2009) and the rising profile of Nigeria as one of the major producers of crude oil in the world (Vetiva, 2011). In response, the world's major multinationals are coming to the country to seek for an integrated business resource, infrastructure and management of their facilities (Adewunmi *et al.,* 2009). Today, government agencies, corporations and non-governmental organisations in Nigeria have realised that the use of organisational structures to manage functions is not helpful. According to Adewunmi *et al.,* (2008), some practical examples of where facilities management has been adopted in practice in the country in both private and public sectors include; NAL towers, Investment and Banking Trust Corporation building, Mobil, Chevron, Sports Complex at Ibadan, National theatre and many others.

On account of the increasing competitiveness and globalisation, FM has embraced innovative skills through not just delivery of services in the most effective way, but by providing them in an ever changing world over the years (Noor and Pitt, 2009b). This has triggered diverse forms of delivery options including use of FM contractors, in-house teams, FM outsourcing vendors, consultants and professional institutions. Though relatively new compared to IT outsourcing, FM outsourcing has been expanding since the 1990s (Brochner *et al.,* 2001) enabling organisations to respond to environmental uncertainties in ways that do not increase costs associated with internal bureaucracy and focusing on building their core competencies. It has come in several packages such as managing agent, managing contractor and total facilities

management contractor while their application is dependent on type, philosophy and objectives of the organisation (Atkin and Brooks, 2009).

The general submission from the review on trends in FM practice above points to the fact that FM as part of the global business model has continued to explore how organisation can grow faster through expansion into new markets, find new ways of fostering innovation through collaborative outsourcing that will achieve right balance between the decision to outsource, risks and legal requirements embedded in the service level agreement (SLA) between client organisations and their FM outsourcing vendors. The next session provides an overview of the various functions of facilities management from the point of view of past scholars.

2.4 Facilities Management services

Services are increasingly taking up a larger part of any organization's purchasing expenditures and one part of the business sector services is FM services (Lehtonen and Salonen, 2005). In a recent study on procurement and relationship management trends in FM services, the authors argue that the relative importance of different business services may differ across sectors, industries and individual companies; but all companies need a workplace (i.e. a physical place and related services). Therefore FM services are the most important service category in terms of volume (Fearon and Bales, 1995). What then constitutes FM services?

As noted earlier, services performed under a typical FM division range from very complex strategic planning confined to the top echelon of management to the day-to-day operational janitorial services such as cleaning, security and catering services; while the management style of the services depend on the size, objectives and core activities of the parent organisation. According to Price (2003):

"The facility management (FM) industry can be broadly divided into three categories: facility managers, specialist consultants and service providers. Facility managers are responsible for particular facilities either for one organization or on behalf of a number of organizations and function largely at a strategic level. Specialist consultants provide targeted expertise in areas as diverse as architectural, structural, fit-out, services and landscape design, cost management, project management, environmental assessment, due diligence, energy planning and dispute resolution, and function largely at a tactical level. Service providers include cleaning contractors,

insurers, furniture suppliers, security, construction, catering, fleet management and a range of other support services, and function largely at an operational level."

The description above could be further aligned into 9 competencies put forward by the International Facilities Management Association. According to (IFMA, 2007), they are operations and maintenance, real estate, health and environmental management, planning and project management. Others include leadership and management, finance, quality assessment and innovation, communication, and technology. They are briefly discussed below as outlined by IFMA (2007).

O*peration and maintenance* oversees the acquisition, installation, operation, maintenance of building systems and structures, furniture and equipment, as well as grounds and exterior elements. Under *real estates*, the facility manager coordinates and implements the real estate's master planning process as well as the assets of the organisation including company's leased and owned properties. *Human and environmental factors* involve the development and implementation of practices that promote and protect health, safety, security and quality of work life, the environment and organisational effectiveness. *Planning and project management* component is responsible for the development of facility plans (long, interim and short terms) including management of all phases of the project. *Leadership and management* plans and organises the facility function by coordinating works performed as contracted services and evaluation of performance to ensure service delivery. *Finance* component of FM manages the finances of the facility by preparing and analysing financial information, monitoring revenues and expenditures to ensure continuous financial obligations of the facility function. *Quality assessment and innovation* manages the process of assessing the quality of services, the benchmarking process, audit activities and developmental efforts to make innovative improvements in facilities and facility services. *Communication* involves all strategies aimed at effective dissemination of information relating to the facility including negotiation for services, resources, information and commitments with a view towards establishing personal and professional networks for the benefit of facility services. Finally, *Technology* component plans, directs, and manages facilities management business and operational technologies as well as its technological infrastructure. A close look at the competencies indicates that they involve activities mostly carried out at strategic levels in an organisation.

From the perspective of FM as a support service, Chitopanich (2004) argues that the primary function of FM is to handle and manage support services to meet the needs of the organization, its core operations and employees. In other words, it is a support function coordinating physical resources and workplace, and support services to user and process of works to support the core business of the organization. In an effort to develop a synchronized list of FM services, Chitopanich (2004) after reviewing a list of support services within the FM remit from previous authors, evolved a cluster of support services that can give a generic scope of FM services. It is made up of five main components namely real estate and property management, maintenance and repairs, office services, space planning and management as well as employee supports and services. However there is overlap of some services under real estate & property management and maintenance & repairs which the author terms facility project management. This replicated some services under maintenance and repairs to form building services and operations. An analysis of the framework shows that the constituents are consistent with the competencies developed by the International Facilities Management Association, IFMA (2007). The only major distinction is that IT is clearly defined as a major function of FM under the competencies of FM while it is not given any specific detail under the cluster of services by Chitopanich (2004).

Opaluwah (2005), using the Nigerian context breaks down FM services into personnel, information services, premises and support services. Support services comprises of mail services, fleet car, catering, reception, house- keeping, office administration, furniture, refuse disposal, reprographics, security, stationery, travel, vending, power supply, water supply, land maintenance and laundry. In a paper on "overcoming the challenges facing FM operators in Nigeria", Aloafin (2003) writing under the caption "the current state of FM services in Nigeria", lists 9 major areas that are very active in Nigeria. They include janitorial, mechanical and electrical, building systems, building structures and permanent interior elements, furniture and equipment, security, food services and office administrative services.

However, Kamarazaly (2007) citing Then and Akhlaghi (1990) classifies FM works from the administrative point of view into classical, tactical and operational FM. FM on the strategic level involves aligning with the higher level of management to deliberate on corporate decisions that will ensure that facilities meet clearly defined business objectives on a long term basis. According to Chitopanich (2004), such strategic decisions involve issues on property asset portfolio management, strategic

property decisions and facilities planning and development which are related to policy and strategic plan of the organization. On the other hand, tactical FM involves monitoring, controlling and managing the operational functions of FM to ensure they are being done in accordance with organization's standards as it relates to policies, strategies and plan. The operational function involves short term results on a day-to-day level and is the most visible part of FM (Chitopanich, 2004). It supports the basic routine and regular needs of the organization.

While the review of FM services above is an indication that the field of FM has continued to widen in scope, there is however a need for word of caution. It is becoming imperative to streamline the functions of FM in order to give it a proper identity that demonstrates its distinctive contribution to management practice and facilities research rather than relying on borrowed management concepts on one hand, and the results of building performance research on the other (Nutt, 1999).

2.5 Sourcing Strategies in Facilities Management

The rising popularity of facilities management coupled with the growing interest of the public sector in the outsourcing of Facilities Management services underscores the need for organisations to make careful and informed decision about whether to outsource or use in-house staff. According to Ancarani and Capaldo (2005) there are several strategies available for Facilities Management. These options include:

- In-house; where a service is provided by a dedicated resource directly employed by the organisation even though the monitoring and control of performance is conducted under the terms of conventional employer/employee relationship.
- Outsourcing; where a service is commissioned from an external supply organisation usually under the terms of a formal contractual arrangement based upon terms and conditions derived from a service level agreement.
- Public private partnership (PPP); where a partnership or strategic alliance is formed between the organisation and service provider based on a sharing of the responsibility for the delivery and performance of the service, including the sharing of the profits arising from any efficiency gains and cost savings.
- Total facilities management (TFM); where a whole range of services are bundled together and externalized to a single supplier which becomes totally

responsible for the delivery, monitoring, control and attainment of stated performance objectives in the contract.

Atkin and Brooks (2000) also suggest three main types of contractual relationships in facilities management outsourcing. They include the managing agent, the managing contractor, and the total facilities management contractor. The managing agent is adopted when an organisation in an effort to keep its employees who does not have the required expertise or skill, brings in an external agent to manage the services more efficiently and effectively as though he/she is a part of the client organisation. The managing agent then oversees the individual service providers on behalf of the client. Under this arrangement, the managing agent has no contractual obligation with the service providers. The managing contractor arrangement offers opportunity where there is one and only one contract between the client organisation and the appointed contractor. Thus, all the service providers are under contract with the managing contractor and have no contractual relationship with the client organisation. The total facilities management arrangement is the situation where organisations pass the full responsibility for managing their facilities to a single organisation for a fixed price. It offers a single point solution to an organisation's needs (Atkin, 2003).

However the choice of which of the three approaches to adopt will depend on a number of factors such as cost considerations, flexibility and transfer of risks. The best approach should be the one that provides value for money to the client organisation and its customers. Many hospitals including those in Nigeria are vigorously adopting outsourcing as a way of improving sustainable resource management practice while most of them have functional facilities management units.

2.6 Service Quality Indicators for FM Services

This section provides an overview of various concepts and models regarding service quality. First, the concepts of quality and service quality are defined as argued by leading academics. Next, the place of service quality in organisational performance is highlighted. Third, the section provides an insight into service quality revolution and describes the arguments about various service quality models for measuring service quality. Fourth, it highlights the relationship between service quality and user satisfaction. Finally, it provides an overview of service level requirements for facilities management services as a basis for understanding the clear service quality benchmarks for required services in the proposed outsourcing framework.

2.6.1 Definition of Service Quality

Quality has variously been described as elusive, complex, and indistinct construct largely because it has often been mistaken for imprecise objectives like goodness, luxury or shininess, or weight (Crosby, 1979; Parasuramen *et al.*, 1985). This is further complicated when looking at quality from services and product/goods perspectives. It is therefore not surprising that many researchers (Rathmell, 1966; Crosby, 1979; Takeuchi and Quelch, 1983; Parasuramen *et al.*, 1985; Cronin and Taylor, 1992) and practitioners alike found it difficult to agree on a clear definition and ways of measuring quality. However in an extensive research, Garvin (1984) harmonised the rival opinions of researchers and practitioners from philosophy, economics, and marketing on what constitutes quality into four categories of approaches:

- Philosophy: innate excellence - although difficult to define, it is absolute and universally recognised (Pirsig1974) through experience (Forker *et al.*, 1996)
- Economics: quantity of desired ingredients or attributes (Abbott 1955) or the weighted sum of desired attributes in a product or service (Leffler 1982)
- Operations: conformance to requirements (Crosby, 1979) - specifications in the case of products (Gilmore, 1974) and expectations in the case of services (Lewis and Booms 1983)
- Marketing: satisfaction of consumer preferences (Kuehn and Day 1962, Edwards, 1968), simplified by Juran (1974) as fitness for use.

Garvin (1984) took these four approaches further by incorporating cost and price as antecedents of quality. He argued that a more value-based definition of quality would be "a measure of not only the degree of excellence, quality of desired attitudes, conformance to requirements, and satisfaction of consumer preferences, but also conformance at an acceptable cost and price. In other words, quality is 'the totality of inherent characteristics of a product or service that bear on its ability to increase the demand for that product or service at a fixed price' (after ISO 9000 Series of Standards). Although these definitions apply succinctly to both products and services, Van Ree (2009) argues that quality management in relation to services demands a different approach when compared to products because services have different distinguishing features. Three well documented features of services include intangibility, heterogeneity, and inseparability. They must be acknowledged and appreciated to have

a full knowledge of service quality. These features of service quality would further be discussed later in this section of the thesis.

As acknowledged in the introductory chapter of this thesis, outsourcing of facilities management services have continued to expand within private and public sectors notably public hospitals. A key driver of outsourcing is to find service quality improvement that can satisfy both users and suppliers of facilities management services. On that basis, this study argues that quality is much more in the eye of the audience and can therefore be based not only on predetermined specifications but on user perceptions. A famous quote by Philip Crosby (1926-2001) that "quality is ballet, not hockey" means that similar to hockey, one can measure the final score of a hockey match; while similar to ballet, one can measure the quality of outsourced services using perceptive judgements of users of the services.

2.6.2 Performance and Service Quality

This sub-section discusses the service quality indicators for facilities management services, describes in detail the relationship between performance and quality by elucidating the concepts of performance criteria and the role of quality in determining performance.

According to Van Ree (2009), the concept of organisational performance or profitability depends on meeting the five generic performance criteria of efficiency, effectiveness, productivity, flexibility, and creativity. *Effectiveness* is defined as the ration of actual and expected output and involves doing the right things, at the right time, and within the right quality (Sink and Tuttle, 1989). In other words, effectiveness connotes the degree to which actual result (output in quality and quantity) corresponds to the aim for result. *Efficiency* on the other hand, is used to describe an input and transformation process equation as "the ratio of resources to be consumed to resources actually consumed (Sink and Tuttle, 1989). Therefore an organisation is efficient if it produces products or services at the lowest possible resource use; people and means, implying that it is important to reduce the use of resources as much as possible to increase organisational efficiency (Van Ree, 2009). According to Van Ree (2009), *productivity* became increasingly popular in the 1970s when costumers and consumers of goods and services became more and more aware of the value of a product or service as well as its quality and other aspects. It was therefore defined as the ratio of actual output to expected resources (Sink and Tuttle, 1989); the ratio of what is produced to what is required to produce it (Hill, 1993); the ratio of actual result of transformation

process to actual resource use which invariably relates effectiveness to efficiency (Van Ree, 2009). *Flexibility* within the context of performance criteria refers to the ability of an organisation to respond quickly and adequately to unexpected changes and challenges. In that circumstance, an organisation should have met the criterion if it is able to recognise opportunities, threats, and weaknesses, and respond quickly and adequately in a way that will suggests it was successfully done. *Creativity* refers to the ability to manage the tension between effectiveness and efficiency as well as guarantee flexibility in such a way as to manoeuvre the influence of demographical, political, technological, social and ecological changes that may affect the environment in which an organisation operates. This is a criterion that became popular during the 1990s as organisations battle to contain the innovation fever blowing through the globe triggered by civilization and increase use of information and communication technology (ICT).

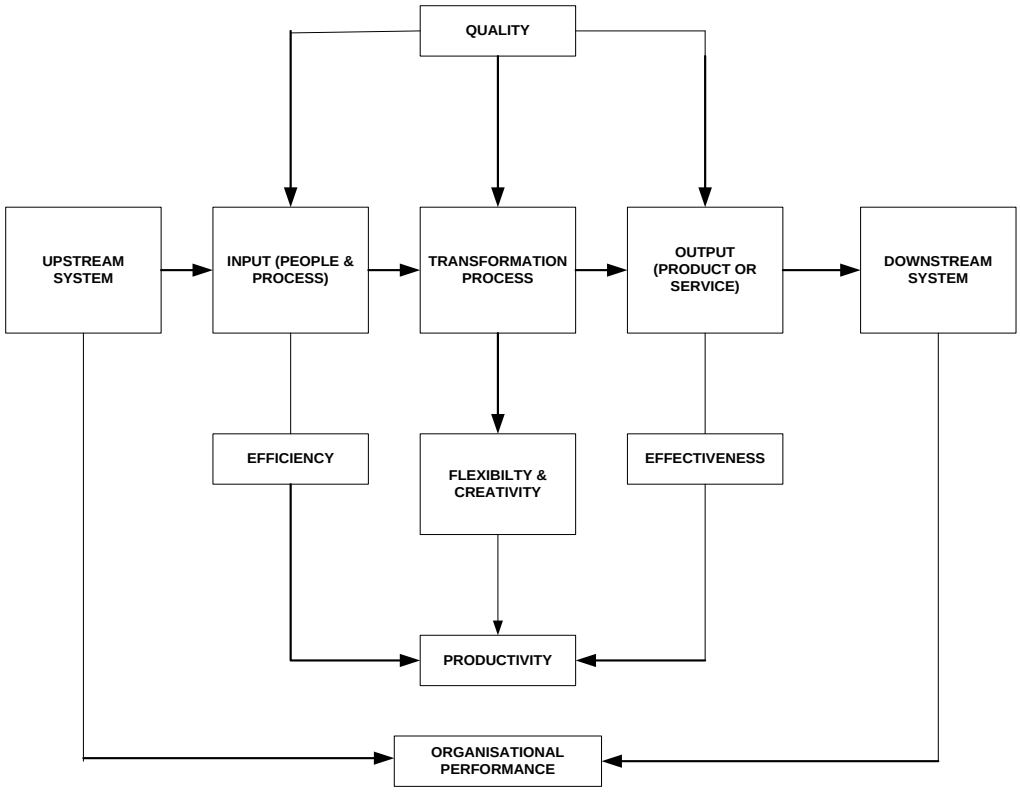

Figure 2.2: Transformation process model

(Sink and Tuttle, 1989; Van Ree, 2009)

The transformation process model (figure 2.2) clearly indicates the place of quality in the organisational performance criteria. **First**; the model shows the inter-relationship between the performance criteria discussed above. Therefore, to achieve an overall performance, an organisation should (1) be effective in such a way that its

goals/objectives are matched with result; (2) be efficient in the management of resources to achieved desired results; (3) pursue productivity by simultaneously controlling effectiveness and efficiency; (4) be flexible in order to stay productive and remain relevant; and (5) be creative by finding the right balance in meeting these criteria. **Second**, the model shows that quality is an integral part of organisational performance and cannot be separated from productivity even though some authors such as Heskett *et al.*, (1994) still regard them as separate concepts. Ensuring quality according to the model, begins with inputs (people and means), undergoes transformation process, and then result to output (product or service). However, Van Ree (2009) is of the view that the notion of output quality operationalized as conformance to specifications or as actual product performance is inadequate in the case of services, and can (only) be based on customer perceptions. The next sub-section discusses the metrics used for measuring service quality and begins with an introduction to service quality revolution.

2.6.3 Measuring Service Quality

The concept of quality control was pioneered by Shewhart while working for Western Electric and Bell Telephone during the early decades of the 20th century. There, he sought for practical methods of quality control as a way of boosting mass production on a large scale in the emerging telephone industry. For more than half of the century, product quality dominated every sphere of quality management. However the debate shifted shortly afterwards from product quality to service quality as service operation became more important than product manufacturing and service industries began to play increasingly important role in the overall global economy. It was in fact reported that the proportion of U.S population for instance, employed in the service sector increased from 30% in 1900 to whooping 70% in 1984 (Bateson, 1989). From 1960-1990s, research grew from debates over the meaning and definition of service and its delineation from product, to debates counteracting the earlier theories about the delineation of service from product (1980s to date). The first period of 1960-1990s in which Regan (1963) claimed that intangibility, perishability, heterogeneity, and ubiquity make services difficult to understand, marked the beginning of service quality revolution.

In order to be able to measure service quality, it is important to understand some basic features of service quality. The first three of such attributes developed during the service quality revolution and championed by Regan (1963) are intangibility, heterogeneity, and inseparability. This is later followed by several others including those developed by Parasuraman *et al.,* (1985, 1988) and Zeithaml *et al.,* (1990), and based on five attributes of tangibility, reliability, responsiveness, assurance, and empathy. Although the service quality literature has many more determinants of service quality, it is the view of this study that these eight characteristics of service quality are good enough to provide insights into how service quality is critical in determining the success of an outsourcing contract for facilities management services provision.

Most services are intangible (Bateson, 1977; Berry, 1980; Lovelock, 1981) because unlike objects, they cannot be felt, counted, measured, inventoried, tested and verified in advance of sale to assure quality (Parasuraman *et al.,* 1985). The consequence is that users of the services may perceive them differently while the providers would have to make additional efforts to make the services tangible.

Heterogeneity, as a feature of service means that services especially those with high labour content are non-uniform in nature because the quality and essence of a service can vary from supplier to supplier, from consumer to consumer and from day to day (Zeithaml *et al.,* 1985). Thus, it is difficult to define what constitutes uniform service quality because the intensions of an organisation regarding what to deliver may run contrary to what the consumer or user gets at the end.

Services are inseparable because its production cannot be in isolation from its consumption (Regan, 1963; Carmen and Langeard, 1980). As a consequence, Parasuraman *et al.,* 1985 argues that quality of services is not engineered at a manufacturing plant and delivered to the consumer, adding that even in labour intensive services, quality assessment occurs during service delivery usually in an open interaction between client and service provider. In other words, the input of the customer is critical in determining what service quality performance is.

The works of Parasuraman *et al.,* (1988), Zeithaml *et al.,* (1990), Vargo and Lusch (2004), and Lovelock and Gummeson (2004) among others counteracted the arguments behind the service quality revolution. The studies were largely of the opinion that some services are tangible, homogeneous, and separable. For instance, Vargo and Lusch (2004) argued that products cannot be more homogenous than services as both

require human judgement while consumers/users have heterogeneous opinions regardless of the relative homogeneity or heterogeneity of products or services. Parasuraman *et al.*, (1988) and Zeithaml *et al.*, (1990) after several trials that involved executive and focus group interviews, came up with five determinants of service quality (see table 2.1).

Table 2.1: Determinants of Service Quality

Determinants	Explanations
Tangibles: Appearance of physical facilities	
	1. Up-to-date appearing equipment **2.** Visual appealing physical facilities **3.** Well dressed and neat-appearing staff **4.** Visual appealing materials associated with service
Reliability: Ability to perform service dependably and accurately	
	5. Doing something by certain times promised **6.** Showing sincere interest in solving problems **7.** Performing the service right at the first time **8.** Providing service at the time promised **9.** Insisting on error-free records
Responsiveness: Willingness to help and provide prompt service	
	10. Telling you exactly when services will be performed **11.** Giving your prompt service **12.** Willingness to help **13.** Never being too busy to respond to requests
Assurance: Knowledge and courtesy of employees	
	14. Confidence instilling behaviour **15.** Feeling safe in your transactions **16.** Being consistently courteous **17.** Having the knowledge to answer questions
Empathy: Caring attention the firm provides its customers	

18. Giving you individualized attention
19. Having convenient operating hours
20. Giving your personal attention
21. Having your best interest at heart
22. Understanding your specific needs

Source: (Parasuraman et al., 1988 and Zeithaml et al., 1990)

Based on the five dimensions of service quality (table 2.1), some services are claimed to be tangible because people can feel, taste, hear and smell (such as in a restaurant operated by a vendor inside a hospital), and sometimes feel the impacts of such services as maintenance repairs and cleaning services. Additionally, the quality of services offered by vendors can be assessed on how reliable the service and their personnel are. This involves such attributes as dependability, accountability, performing service right at first time, and sincere interest in solving people's problems. Service quality can also be measured by the responsiveness of service providers through such attributes as willing to assist, prompt service, never busy to respond, and sincerity. Assurance represents the ability to convey trust and confidence, being knowledgeable in the work one is doing, and having courtesy. Empathy means giving caring and individualised attention to customer and patients in a client hospital for example.

However, in a recent doctoral research, Van Ree (2009) developed a nine-dimensional concept of service quality. Using SERVPERF and SERVQUAL methodologies, the author successfully tested and validated nine indicators on both customers and suppliers to cleaning, catering and security services organisations in business-to-customer and business-to-business contexts. Table 2.2 shows the nine dimensions and their underlying attributes.

Table 2.2: Nine Dimensions of Service

Dimension	Attributes
Reliability	**1.** Consistent and correct service delivery **2.** Meeting deadlines for projects and assignments **3.** Proactive service personnel **4.** Having customer's best interest at heart **5.** Being believable and honest

Clout

6. Having a large presence in the market
7. Having sufficient leverage in the market
8. Ability to coordinate and consolidate resources with other suppliers
9. Ability to act as an advocate with other suppliers in the market

Reputation

10. Demonstration of ethical conduct
11. Having a good reputation in the market
12. Well dressed and neat appearing service personnel
13. Accurate paper work and record keeping by service personnel
14. Explanation of the trade-offs between service quality and cost
15. Understanding customers' needs

Awareness

16. Having a basic understanding of customers' businesses
17. Willingness to learn customers' specific requirements
18. Protection of confidential and proprietary information
19. Visual appealing materials associated with the services

Competitiveness

20. Pricing that is competitive compared to other suppliers
21. Provision of multiple competitive bids
22. Pricing that relates to quality delivered
23. Pricing that meets customers' budget needs
24. Up-to-date appearing service equipment

Collaboration

25. Willingness to incur risks for customers
26. Willingness to act as an advocate with senior customers' executives
27. Willingness to provide profit driven alternatives
28. Willingness to establish partnerships with joint planning and goal setting
29. Promotion of an interactive environment with open communication
30. Assurance that a problem will be handled effectively and efficiently

Accessibility

31. Being easily contacted (face-to-face, email, or phone)
32. Being available at all time to assist customers
33. Having convenient operating hours
34. Having technical resources that ease the spread of information

Competence

	35. Having sufficient expertise in the area of services
	36. Having sufficient research capability
	37. Having the required knowledge and skills to manage the service
	38. Ability to provide customized and unique services
	39. Ability to offer an extended scope of the basic services provided
	40. Having good problem-solving skills
Assurance	
	41. Consistently courteous service personnel
	42. Showing signs of recognition towards customers
	43. Confidence instilling behaviour by service personnel
	44. Receiving prompt service if needed

Source: (Van Ree, 2009)

The work of Van Ree (2009) was in response to concerns and claims by researchers that though the original works of Parasuraman *et al.*, (1985, 1988), Zeithaml *et al.*, 1985, and Cronin and Taylor (1992, 1994) are solid theoretical underpinnings for understanding consumer perceptions regarding service quality, several other salient quality attributes which are very important, remained unexplored. This finding is particularly significant to this study because it was conducted using three major components of facilities management services (cleaning, catering, and security) central to this research and provides a theoretical framework for developing a service quality assessment framework for measuring the user satisfaction of quality of outsourced services in public hospitals. The next sub-section discusses the concepts of user satisfaction and service quality.

2.6.4 User Satisfaction and Service Quality

Although theoretical and empirical research favour the proposition that satisfaction and service quality are unique and distinct constructs (Oliver 1997; Rosen and Surprenant, 1998; Olsen, 2002; and Choi *et al.*, 2005), most practitioners are however of the opinion that they are related concepts that are sometimes understood to be synonymous (Juga *et al*., 2010). There have been considerable amount of confusion in the literature on the nature and causal relationship between consumer satisfaction and service quality.

In developing the SERVQUAL model, Parasuraman *et al.*, (1988) argued that service quality as perceived by customers stems from a comparison of what they feel service providers should offer (expectations) with their perception of the performance of

the service provider providing the services (perception). In the opinion of Hui and Zheng (2010), SERVQUAL model measures service quality by comparing service expectations from customers with actual performance of service providers. Therefore "the term *expectation* as used in the service quality literature differs from the way it is used in the customer satisfaction literature. Specifically, expectations are viewed as *predictions* made by customers about what is likely to happen during an impending transaction. In contrast, in the service quality literature, expectations are viewed as *desires* of customers i.e. what they feel a service provider *should* offer rather than *would* offer" (Parasuraman *et al.*, 1988, p.17 cited in Van Ree, 2009). The SERVQUAL model is an instrument based on five dimensions to characterise consumers' perception of service quality: tangibles, reliability, responsiveness, assurance and empathy (see table 2.1). The model assesses areas of good or bad quality and can be used to show service quality trends over time and for benchmarking purposes (Van Ree, 2009).

While questioning the validity of SERVQUAL, Cronin and Taylor (1992) argued that the perception-expectation gap theory of service quality is supported by little, if any, theoretical and empirical evidence as an appropriate parameter for measuring service quality. The authors base their arguments on the concern of several other authors such as Oliver, 1980, Carman, 1990, and Bolton and Drew, 1991, and suggested using performance perceptions as a measure of service quality, which gave birth to SERVPERF. Cronin and Taylor (1994) put forward the following arguments in favour of SERVPERF:

- Service quality should be conceptualised and measured as an attitude rather than satisfaction paradigm because service quality is directly influenced only by perception of performance. This way, service providers will know whether their objective should be to have consumers who are satisfied with their performance or to deliver maximum level of perceived quality (Cronin and Taylor, 1992).
- The disconfirmation-based SERVQUAL does not measure service quality but only an operationalisation of one of the many forms of expectancy-disconfirmation model (Boulding *et al.*, 1993; Oliver, 1993 cited in Van Ree, 2009), while SERVPERF's performance based measures clearly demonstrate service quality attitudes in a long term (Cronin and Taylor, 1992 cited in Ree, 2009)
- SERVPERF has greater validity when compared with SERVQUAL based on a review of available literature and coupled with the assertion that SERVPERF

measures also exhibit both convergent and discriminant validity (Van Ree, 2009).

However, Cronin and Taylor (1992)'s SERVPERF model and Parasuraman *et al.*, (1988)'s SERVQUAL unanimously agree that perceived service quality leads to satisfaction as proposed by Parasuraman *et al* (1985; 1988). This study agrees with the assertion of Cronin and Taylor (1992) and Parasuraman *et al*. (1985; 1988) that service quality is an antecedent of customer satisfaction. This is because user satisfaction exerts strong influence on what is perceived as quality of service. In the context of FM services in hospitals, the standard of quality of services provided by vendors can be measured by how satisfied users of the services are with the quality of service.

There is a growing amount of interest among researchers in the literature on the use of structural equation modelling (SEM) technique to examine causal relationships between service quality and user satisfaction. Vinagre and Neves (2008) developed and tested a SEM model to examine the influence of service quality antecedents on patients' satisfaction. Using 317 patients from 6 Portuguese public health centres, the authors found that all service quality predictors have significant effect on satisfaction. Using the Japanese context, Elleuch (2008) explored the causal links between quality perception and patients' satisfaction. The final SEM model exhibited positive interactions between process quality attributes and patient satisfaction. Badri *et al*., (2009) developed and tested a comprehensive SEM model based model of service quality and patient satisfaction using data from 214 patients in UAE hospitals while taking into account patients' conditions before and after discharge from hospital. The authors found a strong causal link between health care quality and patient satisfaction. Away from hospitals, Juga *et al*. (2010) investigated how perceived service quality influences shipper's satisfaction in third party logistics outsourcing relationships. Using SEM on data from 235 industrial companies in Finland, the authors confirmed a causal relationship between service quality antecedents and loyalty through a shopper's overall satisfaction with the service provider. In the same year, Hui and Zheng (2010) used SEM approach to measure the degree of relationship between customer satisfaction and service quality of FM services in a housing estate in Hong Kong. The study revealed that both service quality and management quality have significant effect on customer satisfaction.

While the aforementioned studies have demonstrated clear causal relationships between service quality and customer satisfaction, a wide range of research gaps exist

which the present study aims to address. There is no gain saying that hospitals are centres where in-patient diagnostic and therapeutic services are provided for a variety of medical conditions for both surgical and non-surgical operations (WHO, 2007). It is however important to state that there are equally FM services described as non-core support services that compliment smooth operation of the core medical services in hospitals. Some of them are carried out by in-house team while a lot more others are outsourced to service providers to manage. A research devoted to how quality of these services have impacted patients and other stakeholders such as employees, visitors, and service providers is worthy of investigation. This is to give management staff of the hospitals insights into components of outsourced services that are making positive impact on users' satisfaction and those that would require standard corrective measures. Besides, it is argued that findings about the concepts of service quality and user satisfaction cannot be considered to be common across countries. Thus, a study fully devoted to Nigeria's public hospitals would serve as basis for comparison with other regions of the globe. Notwithstanding the gaps outlined above, there are some similarities in the studies. Two of them are easily identifiable. All the studies used the widely publicised SERQUAL and SERVPERF instruments to develop their service quality constructs; while all the samples were above 200. These have implications for the present study. All the service quality constructs developed for this study are theoretically grounded in SERQUAL and SERVPERF models (please see section 5.5 of chapter 5). Besides, the sample size for the component of this study on service quality and user satisfaction is 208 exceeding the generally accepted benchmark of 200. The next sub-section highlights the significance of service level requirements in developing a service level agreement between hospitals and service vendors during pre-procurement processes, a key stage at which levels and specifics in terms of quality of service compliance are negotiated.

2.6.5 Service Level Requirements for Facilities Management (FM) Services

A service level agreement (SLA) is a contractual obligation between a service provider and its client that clearly details, usually in measurable terms, the key specific service level requirements or key performance indicators in terms of acceptable quality levels which the service provider is expected to meet, and what penalties are meted out for not being able to achieve the agreed benchmarks. Thus, it is the cornerstone of vendor selection process at the procurement stage and how the successful FM service

provider sets and maintains commitments to the hospital from the early stage of the outsourcing contract.

According to Wustenhoff (2002), a good service level agreement (SLA) addresses five key aspects:

- What the provider is promising;
- How the provider will deliver on those promises;
- Who will measure delivery, and how;
- What happens if the provider fails to deliver as promised; and
- How the SLA will change over time.

Based on the above, this study argues that it is important to acknowledge what the FM service provider is promising and capable of doing, at the earliest stage of pre-procurement. This enables the client to carry out preliminary checks to validate what the service provider is promising thereby ensuring that they are not mere rhetoric. The SLA also enables the client assess the suitability and viability of the methodology and techniques through which the provider is expected to deliver on promises made. The SLA in addition provide details about who is responsible for monitoring and measuring delivery attributes and how it would be carried out, as well as what happens if the service provider fails to keep to promise made. As SLA is transient in nature, it is subject to change and modification, which is why the process of its change over time is also addressed in the agreement.

It is also worth noting that the concept of SLA is very crucial to the success of any outsourcing contract between FM service providers and public hospitals in Nigeria as client. This is because it sets out boundaries and expectations for aspects of FM services in the hospitals as follows:

i. *User commitments*: Clearly defined promises reduce the chances of disappointing users of outsourced FM services. In other words, these promises made by providers in the SLA also help them to stay focused on user requirements and ensure that the internal processes and procedures are directed towards meeting the set goals.
ii. *Service quality indicators for user service*: By having these indicators established in the SLA, it is easy to see how these performance indicators can be fully integrated into a quality improvement and assessment mechanism, and by doing so, improves user satisfaction about quality of outsourced services, a major objective of SLA in the first instance.

iii. *Service quality indicators for internal organizations*: According to Wustenhoff (2002), an SLA drives internal processes by setting a clear, measurable standard of performance thereby making internal objectives become clearer and easier to measure. Thus, public hospitals can then measure the performance of its in-house team against that of service provider using SLA thereby improving the course of sustainable delivery of FM services provision.

iv. *The price of non-conformance*: The penalties clause in SLA ensures there is a price for non-conformance by FM service providers meaning that non-performance can be costly. Therefore, by having penalties clearly defined, user of FM services understands that the provider truly believes in its ability to achieve the set performance targets. It makes the outsourcing relationship between hospitals and providers clear and positive.

In summary, this sub-section has demonstrated the significance of service level requirements in any contractual obligation between a client and its outsourcing service provider. It has provided a theoretical foundation for developing an outsourcing framework (research problem for this study) that would spell out measures, metric, and indicators that are required to be in place at the earlier stage of the pre-procurement process.

2.7 Chapter summary

The chapter reviewed the concept of facilities management including definitions, current general practice and theoretical framework underlying the concept. It shows that facilities management over the past years remains a remarkable success story while the future remains bright but essentially grossly under-researched. Besides, the chapter explained key component features of service quality and related literature on concept of service quality versus user satisfaction as well as service level agreement as a key to the success for outsourcing FM services. The next chapter discusses the concept of outsourcing as a sourcing strategy for FM services.

CHAPTER THREE

OUTSOURCING

3.1 Introduction

This chapter explores the underlying characteristics of outsourcing, its theoretical foundations and past empirical studies on the outsourcing. It specifically outlines outsourcing from the context of outsourcing decision, outsourcing risk, outsourcing practices as it relates to health organisations, and reviews some framework for outsourcing from past studies.

3.2 Definitions of Outsourcing

Outsourcing has been variously defined as the "contracting-out" of services that were previously performed in-house to an external service provider as a mean of increasing organisational efficiency and effectiveness (Steane and Walker, 2000; Monczka *et al.*, 2005; Li and Choi, 2009). In terms of IT infrastructure, several definitions have been presented by authors (Lacity and Willcocks 1998; Kern and Willcocks, 2002; Aubert, 2004). The authors are all unanimous in their definitions as " the process whereby an organisation "contracts" out all or part of its IT components (assets, people and/or activities) to a third party usually an external provider who in exchange provides and manages the activities for an agreed fee over a period of time. Thus, outsourcing involves the contract between an organisation and an external provider for the purpose of contracting out services which were previously performed by in-house staff. In contrast however, there is a school of thought which argues that outsourcing is just the procurement of services or products in order to cut costs (Domberger, 1998). The idea here is that the services do not necessarily need to have been previously performed in-house.

This study chooses a general definition that does not distinguish between what was previously been performed and what was never performed by in-house before it is contracted out. Consequently, it defines outsourcing as "*the decision by an institution to contract out services to an external provider at an agreed fee for specified period of time"*. This definition purposely does not differentiate between types of services, provided there are within the confine of facilities management services.

According Prahalad and Hamel (1990), outsourcing involves restructuring a firm's activities in order to stimulate the development of its core activities by externalising less important activities and those that are not a source of competitive advantage. There are several different types of outsourcing in the outsourcing literature. Miller (1994) classifies outsourcing into four basic types. They include:

i. *General outsourcing* covering three alternatives including selective outsourcing, value-added outsourcing and corporative outsourcing.
ii. *Transitional outsourcing* which involves moving one form of technological platform to another.
iii. *Business process outsourcing* in which a third party supplier performs the entire business activities for the client organisation.
iv. *Business benefit contracting* refers to a contractual arrangement that spelt out the vendor's contribution to the client in terms of specific benefits to the business and terms of payments the client is obliged to pay upon the vendor's ability to deliver those benefits (Bustinza *et al.,* 2005 citing Dibbern *et al.,* 2004).

In terms of emerging sourcing arrangements, Willcocks and Lacity (1998) in Bustinza *et al.,* (2005) discuss six forms. They include *value-added outsourcing* in which the strengths of the parties to the outsourcing arrangements are combined to enable them market new products and services; *equity holdings* in which one party acquires equity in the other; *multi-sourcing* in which there is one outsourcing contract but several service providers; *co-sourcing* in which outsourcing vendor's revenue is tied to the performance of client organisation; *spin-offs* in which the in-house IS department is converted into a new company that sells its services to the market and *creative contracting* in which personalized clauses are included in the contractual arrangement to satisfy specific customer needs.

In terms of Information Technology (IT) outsourcing, Paravastu (2007) developed a list of various types of outsourcing arrangement found in the IT outsourcing literature (see table 3.1)

Table 3.1: Types of IT outsourcing arrangements

Type	Description	Author(s)
Total outsourcing	Arrangement that transfers 80% of IT budget for IT assets, leasing of staff to a third party	Grover *et al.,* (1994); Lacity *et al.,*

		(1998).
Selective outsourcing	Arrangement that transfers 20% but less than 80% of IT budget for IT assets, leasing of staff and management to a third party.	Lacity *et al.*, (1998).
Total in-sourcing	Arrangement retaining 80% or more of IT budget internally after evaluating the market trends.	Lacity *et al.*, (1998)
Time-sharing	A method of allowing multiple users to simultaneously access to a central mainframe through remote dumb-terminals to minimize higher capacity computer's idle time and cost efficiency. It is a type of outsourcing common in the 1950s through 1960s.	Grover *et al.*, (1994); Lee *et al.*, (2003).
Body shop	Short term solution to meet specific project demands, usually by hiring contract employees and managed by company employees.	Lacity *et al.*, (1993).
Project management	Outsourcing for a specific project and also a short term solution. The project outsourced is managed by the vendor.	Lacity *et al.*, (1993).
Transitional outsourcing	Temporary handing over of a select IT function to a supplier usually a legacy system to build a new advanced system.	Kern& Willcocks (2001); Lacity *et al.*, (2001)
Smart contracting	Introduces a customer-written contract or open book accounting with third party pricing benchmarks in order to bring about flexibility and transparency in outsourcing deals.	Kern& Willcocks (2001)
Offshore/Global outsourcing	Sourcing from a different country or continent to take advantage of costs, advanced technology, expertise or foreign exchange differentials.	Sobol *et al.*, (1995); Lacity *et al.*, (2001)
Value-added outsourcing	Outsourcing deals aim to combine the strengths of both the client and the vendor to market their IT products and services.	Kern& Willcocks (2001
Application service providers	Outsourcing of specific IS functions in which the vendor develops and hosts applications and related services on a remote server and provides access to client over the internet.	Kern& Willcocks (2001)
Co-sourcing	Contracts based on performance in which payments are tied to business performance.	Lacity *et al.*, (2001)
Spin-offs	Giving complete autonomy in operation and pricing to IT in-house staff to operate as a service provider.	Lacity *et al.*, (2001)
Facilities management outsourcing	The facilities that require specialized and competent staff to operate are managed by a third party service provider.	Grover *et al.*, (1994).
System integration outsourcing	A third party service provider linking various IT functions within and across the organisations.	Grover *et al.*, (1994).
Domestic outsourcing	An outsourcing arrangement (total or selective) to avail the services of domestic vendor(s).	Sobol *et al.*, (1995).

(Adapted from Paravastu (2007)

From the foregoing, facilities management outsourcing could then be referred to as the development of a new contractual relationship where facilities management tasks formerly carried out by FM in-house team are transferred to one or more service providers, either pre-existing or specifically created for that purpose. According to Ware

and Carder (2012), it is initiated to enhance FM capabilities and performance by facilitating operation of FM much more strategically in the long term. Lam (2011) reported on a questionnaire survey conducted by International Facilities Management Association (IFMA, 2007) on outsourcing of facilities and property services to its North American members and confirmed that the percentage of firms outsourcing one or more services was 77% in 2006. Additionally, DeAnne (2008) reports that outsourcing of public services in UK have become a significant part of the economy, accounting for £79bn in 2007/2008 which is nearly 6% of the GDP and that it directly employs well over 1.2 million people. The result is the same in most parts of the world and underscores the importance attached to outsourcing as a management strategy for improving efficiency and effectiveness in the management of resources for public good.

3.3 Outsourcing Theories

Barney (1991) posit that *Resource based theory (RBT)* explains the impact of firm resources on firm performance and the effect of competitive advantage on firm performance. According to Wernerfelt (1984), a resource is defined as anything which adds to the strength of a given firm and which include both tangible and intangible assets. These resources have the attributes of value, rareness, difficult to imitate and non-substitutability (Paravastu, 2007). A resource is considered valuable if it adds to the positive value of the firm, rare if it is unique or scarce among current and potential competitors, difficult to imitate or replicate by competitors and cannot be used in place of it by competing firms to achieve the same or identical results. From a resource based point of view therefore, an organisation is expected to formulate its internal strategy to gain market advantages and capitalize on its internally available resources. In the context of outsourcing of facilities management, the resources are the FM services, the in-house staff and the vendors.

According to the *Resource dependency theory (RDT),* organizations depend on the environment to acquire and maintain the resources they need (Pfeffer *et al.,* 1978). Task environments have three dimensions (Paravastu, 2007). They are concentration (the extent to which the power and the authority in the environment is widely distributed); munificence (whether a critical resource is available or scarce) and interconnectedness (pattern of linkages among organizations). Resource dimensions include importance of resource, discretion (whether and which supplier to get the resource from) and alternatives (substitutability of the resource). Organizations

therefore adopt strategies to access those critical resources, establish those resource-dependent relationships with the external environment in order to ensure organizational survival. Paravastu (2007) quoting Cheon *et al.* (1995) proposes that the dimensions of the environment (concentration, munificence and interconnectedness) and that of the resource (importance of the resource, alternatives available and discretion of the organization) influence an organization's outsourcing decisions and outsourcing strategies of whether to use total or selective outsourcing.

The *knowledge based theory (KBT)* posits that a core capability is a knowledge set that distinguishes one group from another and provides a competitive advantage (Leonard-Barton, 1992). The knowledge may take the form of employee knowledge or skills, technical systems, managerial systems, norms and values (Kroes and Ghosh, 2010). In the context of examining outsourcing of facilities management services through a knowledge based perspective, an outsourcing decision will attempt to identify the service provider whether internal or external, that can provide a knowledge set that generates a competitive advantage for an organization (Capron and Mitchell, 2004).

Transaction cost theory (TCT) is concerned with make or buy decisions. Williamson (1985) posits that economic efficiency can be achieved by a comparative analysis of production costs and transaction costs exchanged between entities. Transaction costs are primarily influenced by three factors (Paravastu, 2007). They include degree of uncertainty, frequency and asset specificity. Degree of uncertainty arises from fast paced technological changes, unpredictability in market conditions, complexity of contracts and quality of the outputs. High degree of uncertainty leads to opportunism. Asset specificity is the degree to which assets are specifically designed for a particular purpose without many alternative uses. Transactions that have high specificity should be carried out in-house. Frequency of contracting is the recurring occurrences of transactions between parties to a contract. In the context of FM outsourcing, FM services will be outsourced if it is low on asset specificity, low on uncertainty and high on frequency of contracting.

Agency cost theory (ACT) explains the relation and cost of a contract where a principal delegates a job to an agent (Eisenhardt, 1989). Agency costs are the costs incurred by the principal to ensure that the agent will act in the principal's interest. The three components of the agency cost theory are monitoring costs, bonding costs and residual losses. Monitoring costs are the costs of selecting an agent, obtaining

information and overseeing the agent's performance. Bonding costs are the costs incurred by the agent to assure the principal of the agent's commitment. Residual losses are the losses suffered by the principal on account of having an agent. Determinants of the agency costs are: outcome uncertainty, programmability, measurability of performance and risk aversion. Outcome uncertainty is caused by technological and economic changes, changes in government policies or any other factors that reduces the ability to plan in advance or that introduces an element of risk. Programmability is the extent of predictability of the agent's appropriate behaviour. Outcome measurability is the extent to which the performance of the agent can be easily measured. Risk aversion is the attitude of either the agent or the principal or both towards risk (Eisnhardt, 1989). Assumptions of the agency cost theory are that parties in the relationship have (1) self-interest (2) bounded rationality and (3) are risk averse. It also assumes that an agent has an informal advantage over the principal and the agent's interests may be different from that of the principal. High level of uncertainty, high risk aversion, low programmability and low outcome measurability increase agency costs (Cheon *et al.,* 1995).

The five theoretical perspectives of outsourcing discussed above are complementary in understanding the theoretical bases underlying outsourcing and facilities management. For instance the Resource-based theory help to review the attributes of the FM services and evaluates whether there is a gap in the performance of the FM service and the expectations and if there exist a gap, whether the resource should be outsourced to complement the internal resources. Resource-dependency theory looks at FM as a function and provides insights about the extent of FM services that can be outsourced (whether an organization has to opt for total or selective outsourcing or total in-sourcing). Agency-cost theory looks at the relationship between the client and the vendor as well as the risks involved in a typical FM outsourcing relationship. Transaction-cost theory explains the economics of the outsourcing decision. This means that an organisation will decide to either outsource or carry out the FM services in-house depending on the costs associated with the transaction and total production process. Knowledge-based theory explains that a core capability is a knowledge set that distinguishes one group from another and provides a competitive advantage (Leonard-Barton, 1992). Therefore an organization can opt to outsource any of its FM services to a vendor who has a more comparative resource to carry out the service or in-source those services it can perform in a way that distinguishes them positively from their competitors.

3.4 Outsourcing Decisions

Outsourcing decision is a version of make-or-buy decision in which an organisation elects to purchase an item that previously was made or a service that was performed in-house (Monczka *et al.,* 2005 cited in Ghodeswar and Vaidyanathan, 2008). Meanwhile, there is an increasing awareness in management literature that the decision to outsource is a complex one laden with uncertainties (Hiu and Tsang, 2004). This is because the choice of whether to use outsourcing or in-house/in-sourcing will have a direct impact on both the economic and social well-being of the community that benefit the service (if it is a public enterprise) and the success or failure of the organisation (if it is a private enterprise) which in turn impact on the shareholders, the staff and even the community. Several studies have highlighted the importance of outsourcing decision factors. A few of them is briefly reviewed to put it in context.

In a study on supporting decision making process in facilities management services procurement using a methodological approach, Ancarani and Capaldo (2005) developed a model to assist public managers in decision making process for facilities management services. The model took into account both internal and external variables with reference to FM sourcing strategies applied in local governments. The internal variables relate to operational aspects of the public enterprise such as operations, competencies, complexities and dimension while the external ones relate political and competitive pressures. The model suggests that in-house management prevails when political involvement as well as the need for employment is very high while outsourcing strategy should be adopted when there is competitive pressure, provision of complex services, cost reduction and market complexities. The study however failed to give in more detail the implications of using the model.

In another study on outsourcing congruence with competitive priorities: its impact on supply chain and firm performance, Kroes and Ghosh (2010) developed a set of outsourcing decision factors and categorized them into cost related outsourcing drivers, flexibility related outsourcing drivers, innovativeness related outsourcing drivers, quality related outsourcing drivers and time related outsourcing drivers. *Cost* related drivers are those factors that aim to improve cost competitiveness by eliminating unproductive activities and refocusing on reducing costs. According to the study, the specifics include the selection of a partner that offers lower total costs, logistics and regulatory as well as legal costs to perform an activity. On the other hand, outsourcing

drivers that support *flexibility* include a desire to increase process innovativeness and the ability to change production volumes and supply chain activities in response to changing market needs. Besides, firms that emphasise on *innovativeness* when making outsourcing decisions rely on it to gain access to labour skills and expertise not available in-house (Hoecht and Trott, 2006) and free up employees with innovative skills and expertise not available to competitors. Also, outsourcing decisions that focus on *quality* as the key priority will want to see how the services of the provider have conformed to quality standard specified in the outsourcing contract better than when it is done by in-house staff. A focus on *time* when making outsourcing decisions implies hiring a provider that will improve product delivery by developing and delivering products on time, offer comparatively faster process capability and reduce cycle times (Weber *et al.*, 1991 cited in Kroes and Ghosh, 2010). However the factors developed by the study are majorly private sector-driven while it was carried out on the manufacturing industry. The implication is that non-financial benefits or factors such as environmental and social considerations, customer and labour relations are left out as factors to consider while making outsourcing decisions.

Burdon and Bhalla (2005) study explains the outsourcing decision factors in terms of the benefits derivable from outsourcing of Engineering and Facilities Management (EFM) services in Australia. They authors categorized the factors into *primary* benefits (reducing costs, enhancing reliability, improving quality and access to best practice), *secondary* benefits (flexibility to changes, focus on core competencies, achieving innovation and continual improvement) and *nice–to-have* benefits (understanding of business objectives, improving customer relations, improving labour relations, conserving capital and increasing speed to market. In all, the survey shows that cost reduction was the most rated factor while increasing speed to market was the least rated. This is consistent with other studies (Barthelemey and Dominique, 2004) that cite generating cost efficiencies and controlling costs as key reason for outsourcing. The study is however deficient in the fact that it was carried out in a private sector organisation whose main objective is usually to make profits ignoring the place for non-financial oriented public sector organisations that offer services for the public good.

Recently, Ghodeswar and Vaidyanathan (2008) classified drivers of outsourcing into organisational, improvement, financial and cost, and revenue drivers. The authors explain organisational drivers as considerations that hint on the organisation's desire to achieve a higher quantum of focus on core business, increase flexibility to deal with

ever changing business conditions, demand for products and services, leveraging emerging technologies and achieving higher stakeholder value. Improvement drivers seek to improve operating performance such as obtaining expertise, skills and technologies; improve management control; improve risk management; acquire innovative ideas; improve credibility and image by associating with superior providers. Financial and cost drivers of outsourcing the authors posit are to reduce investment in assets, free-up resources for other purposes and generate cash by transferring assets to the service provider. This the authors argue will give an organisation the opportunity to reduce or control the operating costs, convert fixed costs to variable costs by allowing service providers use their expertise to handle complex and very demanding situations more effectively using economies of scale, automation, process maturity and investment in the latest technology at their disposal. On the other hand, an organisation's desire to outsource, the authors believe are driven by the need to achieve aggressive growth through gaining increased market access and leveraging the service provider's best-in-class process, capacity and systems. In effect, equipment, facilities, vehicles and licences used in the current operations have a value and are sold to the provider as part of the transaction, resulting in an inflow of cash. However the inclusion of a cost related factor like "to eliminate fixed cost of internal staff by moving the function to a supplier" on the improvement drivers list instead of the financial and cost drivers and organisational related sub-factor "to manage demand effectively through outsider's automation, process maturity and the latest technology" included in the revenue drivers list look inconsistent. Perhaps the use of principal factor analysis would have grouped them properly based on their various loadings and the variance explained by each of them.

3.4.1 Outsourcing decision factors for the study

Literature so far reviewed has identified several factors that influence the decision to outsource functions. The factors identified have largely been investigated under sectors other than facilities management in public sector organisations. This is attributed to the fact that facilities management is just evolving as was discovered in the literature. Such sectors include supply chain management, logistics, manufacturing and information technology. Table 3.2 shows the 65 factors that may influence the decision to outsource as identified from the literature. It is categorized into 8 distinct groups namely cost/financial, strategic, and innovative. Others are revenue, quality, time, service-to-community and general factors.

Table 3.2: Factors that influence outsourcing decision as identified from Literature

S/n	Factors	Author(s)
1	**Cost/Financial** 1. To make cost transparent 2. To convert fixed cost to variable cost 3. To reduce cost 4. To instil cost efficiency 5. To eliminate fixed cost of internal staff 6. To reduce investment in assets 7. To reduce invested capital funds in non-core functions 8. To control operating costs 9. To assess outside provider's lower cost structure 10. To achieve cost reduction with enhanced performance 11. To conserve capital 12. To reduce capital expenditures	Wagenberg, 2003, Quelin & Duhamel, 2003; Jiang, 2006, Bustinza *et al.*, 2005; Ghodeswar *et al.*, 2008; Kroes & Ghosh, 2010; Hsiao *et al.*, 2010
2	**Strategic** 13. To focus on core competencies 14. To improve strategic positioning 15. To increase flexibility and profitability 16. To have greater trust on market positioning and new product 17. To become more flexible and dynamic in meeting challenging opportunities 18. To improve control of operational process including risk management 19. To improve process responsiveness and cycle times 20. To improve volume capability 21. Multiply sourcing in case of uncertainty 22. To handle varying demand more effectively through economies of scale 23. To explore operations in new geographical region 24. To focus on enablers of business growth and strategies 25. To increase competition **26.** To focus on internal business improvements	Bustinza *et al.*, 2005; Ghodeswar *et al.*, 2008; Kroes & Ghosh, 2010
3	**Innovative** 27. To gain access to products, services and emerging technologies 28. To obtain expertise, skills and innovative ideas	Abraham & Taylor, 1996; Deaver, 1997; Wagenberg, 2003; Ghodeswar *et al.*, 2008; Kroes & Ghosh, 2010

	29. To obtain technologies not available in-house 30. To stimulate innovation among personnel 31. To permit quicker response to new needs 32. A deliberate policy to increase competition **33.** To improve productivity	
4	**Revenue** 34. To generate additional funds to organisation 35. To achieve aggressive growth objectives by gaining increased market access 36. To expand capacity to design, test and build new products and services. 37. To manage demand efficiently through outsider's automation, process maturity and latest technology. 38. To leverage on the service provider's best processes, capacity and systems **39.** To increase speed to market	McCarthy & Anagnostou, 2004; Burdon & Bhalla, 2005; Ghodeswar *et al.*, 2008
5	**Quality** 40. To improve performance to quality standard 41. To improve quality of service to users 42. To improve mutual trust between organisation and customers **43.** To improve responsiveness in terms of after-delivery service	Burdon &Bhalla, 2005; Ghodeswar *et al.*, 2008; Kroes & Ghosh, 2010
6	**Time** 44. To improve timely delivery of service **45.** There's not enough time to acquire tools and techniques in-house	Weber *et al.*, 1991; Lonsdale & Cox, 1998; Gottfredson *et al.*, 2005
7	**Social** 46. To redirect resources from non-core activities to greater focus in serving the customer 47. To improve on stakeholder satisfaction 48. To enhance reliability 49. To improve customer relations 50. To improve labour relations 51. To improve on corporate social responsibility **52.** To create jobs for local communities	Brackertz & Kenly, 2002; Burdon & Bhalla, 2005; Alexander & Brown, 2006; Ghodeswar *et al.*, 2008
8	**Others** 53. Restricted by insufficiency in own resources 54. To mix direct labour with external contractors 55. To play along with the trend in privatisation 56. Need to have better adjustment for work fluctuations 57. To share risks 58. To impact on institution's competencies 59. To evaluate performance of in-house with a service provider 60. For legal compliance 61. To be a catalyst for transformation change 62. To overcome cultural barrier	Deavers, 1997; Wagenberg, 2003 Wagenberg, 2003; Quelin & Duhamel, 2003; McCarthy & Anagnostou, 2004; Burdon & Bhalla, 2005; Schoenherr, 2010

63. To get rid of problem functions
64. To limit size of staff
65. No patent for needed technology

3.5 Risks associated with outsourcing

With the growing popularity of outsourcing as a strategy for improved performance in both private and public organisations, there are possibilities of risk that may lead to undesirable outcomes. Abbasi *et al.,* (2005) defines risk as the probability of occurrence of some uncertain, unpredictable and even undesirable events that would change prospects for the probability of success of a given investment. In other words, for an organisation to achieve best value in its investments, Atkin and Brooks (2009) posit that the many risks involved in the search for best value should be recognised and transferred to those who are able to manage them effectively.

3.5.1 Identification of risk Factors associated with outsourcing

Risk factor identification (RFI) is the base of whole risk management (Li and Liao, 2007). By this, various risk factors that may influence any outsourcing operation are uncovered to help decision makers capture the source of any outsourcing risk (Fan, *et al.,* 2011). This means that the severity of a risk factor is judged by the role of the factor and to what extent the risk factor should be watched. Several studies on the risk factors associated with outsourcing of functions have largely been reported (Hoecht and Trott, 2006; Kremic *et al.,* 2006; Iacovou and Nakatsu, 2008; Sattineni, 2008; Fan, *et al.,* 2011). These studies have however mostly focused on the risk factors associated with Information Technology (IT) outsourcing. Some of them are briefly reviewed below to put the concept of outsourcing risks under proper perspective.

In one of the studies, Kemic *et al.,* (2006) conducted a survey of benefits, risks and decision factors for outsourcing IT functions by analysing several literature based on the content of the studies. Regarding risks, the authors identified some of the known risks in outsourcing. They include unrealised savings with a potential for increased costs; employee morale problems; over-dependence on a supplier; loss of corporate (core) knowledge and future opportunities; inadequate requirement definitions; poor contract; lack of guidance for planning or managing an outsourcing initiative and poor supplier relations. The study of Kremic *et al.,* (2006) is relevant to this research because most of the factors identified are also associated with the outsourcing of FM services.

For example, there is the potential of grave undesirable outcome if the risk of over-dependence on a service provider which is a prelude to opportunistic tendencies is not properly addressed particularly in a public sector setting where it is generally believed that "everybody's business is nobody's business".

In yet another study by Nakatsu and Iacovou (2009), a Delphi survey was used to develop a list of important risk factors associated with IT domestic outsourcing. In it, 20 risk factors sourced from literature were administered to respondents in three rounds of exercise using a Delphi questionnaire. The risk factors were then ranked in order of importance. The first 10 factors include; original set of requirements is wrongly communicated; lack of communication; poor change controls; lack of top management support; lack of required technical know-how by vendor; lack of vendor commitment; failure to manage end-user expectations; lack of project management know-how by client; inadequate user involvement; inadequate staffing by vendor and vendor viability.

Recently and based on the studies of several authors, Fan, *et al.,* (2011) used interdependent information which is an extended DEMATEL (Decision Making Trial and Evaluation Laboratory) method to identify the importance and classification of risk factors associated with IT outsourcing. 8 factors identified and explained by Fan, *et al.,* (2011) include; *Technological indivisibility*: since much of IT is not divisible, trying to divide it into parts for different vendors can be risky; *Possibility of weak management*: new type of IT outsourcing management may be more difficult. Therefore weak management may likely increase costs and lead to conflict and dissatisfaction; *Cultural fit*: poor cultural fit may damage the outsourcing relationships between clients and vendors and lead to conflict them; *Requirement instability*: future direction and requirements of the client may change in the course of an IT outsourcing operation; *Coordination between client and vendor*: effective coordination between client and vendor could facilitate the favourable cooperation in the process of IT outsourcing operation. Ineffective coordination can result to risk; *Reliability of selected vendor(s)*: unreliable vendor(s) may influence the schedule and quality IT outsourcing operation; *Uncertainty about the legal environment*: legal environment is the external condition for IT outsourcing. Uncertain legal environment however could influence IT outsourcing operation; *Technological complexity*: technological complexity may influence the schedule of IT outsourcing operation and the quality of task accomplishment. This research posits that it is only technological indivisibility that may not be applicable to the outsourcing of FM services.

However, from the perspective of facilities management, Atkin and Brooks (2009) developed a set of risks that organisations face in their pursuit for more and effective facilities management. These risks have the potential to hinder or even negate attempts at achieving value for money. Some of them include; Inadequately resourced or inexperienced client function; Inadequate planning of the implementation – no analysis of implementation or allocation related responsibilities; Misapplication of transfer of undertakings; Poor relationship between contractor and contract manager; Conflicts of interest when dealing with in-house tenders; Unclear or imprecise roles, responsibilities and targets for effective team working; Possible loss of control over the facilities management function and ownership of, and access to documents and knowledge; Lack of standard forms of facilities management contracts or adequate condition of contract; Inappropriate allocation of risks and rewards between the client organization service providers; Inadequate definition of the scope and content of services; Poorly controlled changes to user requirements; Financial failure of chosen service provider during contract period; Lack of education and training in facilities management; Fraud or irregularities in the award and management of contract; excessive monitoring of contract performance; absence or poor system for providing incentives for performance; poor bundling/grouping of activities to be outsourced; absence of share ownership of outcomes; poor cash-flow position for client organisations and for service providers and absence of benchmarks of cost and quality against which to measure performance and improvement.

Redding (2007) in his work on "managing risks in FM outsourcing" posits that risk factors common to outsourcing facilities management service include; excessively high vendor labour rates, call-out charges for labour, minimal vendor accountability for asset performance, improper invoicing and billing practices, high management overhead, unfavourable contract terms, critical service or asset failures, service provider underperformance, financial underperformance, cultural rejection, loss of knowledge and labour risks. All of these can have a negative impact on operations.

3.5.2 Risk factors for the study

A total of fifty (50) risk factors that may be associated with outsourcing of FM services by most organizations were identified and will form the variables to be used for determining the critical risk factors in this study (table 3.3). The risk factors have been categorized into five groups to allow for ease of identification by respondents. The five

groups are client, contract, and vendor. Others are political and general factors. They represent the most commonly cited factors as regards risks in outsourcing but however, do not represent a comprehensive inventory of all possible factors associated with the outsourcing of FM services. Majority of the factors identified are from IT outsourcing literature since there are apparently not enough research on the FM outsourcing in the literature.

Table 3.3: Outsourcing risk factors as identified from Literature

Categories	Risk factors	Author(s)
Client	1. Inexperienced client 2. Conflict of interest between client and supplier 3. Unclear responsibilities and targets 4. Inadequate planning of policies for outsourcing 5. Possible loss of control over FM functions 6. Excessive monitoring of performance 7. Lack of education and training for in-house f/managers 8. Loss of core knowledge 9. Loss of strategic flexibility 10. Fall in morale of employees 11. Loss of internal coherence 12. Selective discrimination of providers 13. Inadequate allocation of risks and rewards 14. Los of organisational competence 15. Possibility of weak management 16. High management overhead	Hamel & Prahalad,1990; Earl,1996; Aubert *et al.,* 1997; Kremic *et al.,* 2006; Redding, 2007; Atkin & Brooks, 2009; Fan, *et al.,* 2011; Nakatsu & Iacovou, 2011
Contract	17. Inadequacy of standard form of contract 18. Inadequate definition of scope and content of services 19. Poor system for rewarding performance 20. Failure to take account of relevant health and safety issues 21. Poor grouping of activities to be outsourced 22. Irregularities in the award and management of contract 23. Failure to consider all costs 24. Absence of benchmark for cost and quality 25. Confidentiality leaks 26. Unfavourable contract terms 27. Lack of trust 28. High level of business uncertainties	Lacity & Hirschheim,1993; Adeleye *et al.,* 2004 Dibbern & Goles, 2004; Kremic *et al.,* 2006; Atkin & Brooks, 2009
Vendor	29. Vendor locked in long term agreement 30. Loss due to vendor opportunism	Earl,1996; Wang, 2002; Dibbern & Goles, 2004; Redding, 2007;

	31. Financial failure of vendor 32. Excessive high charge by vendor 33. Vendor underperformance 34. Poor quality of services by vendor 35. Improper invoicing and billing activities 36. Inadequate staffing by vendor 37. Possibility of fraud by vendor 38. Inexperience and lack of requisite skill	Atkin & Brooks, 2009; Fan, *et al.*,2011; Nakatsu & Iacovou, 2011
Political	39. Loss of intellectual rights 40. Political instability 41. Forced divesture 42. Confiscation by government 43. Nationalisation of assets of service providers	Dhar & Balakrishnan, 2006; Atkin & Brooks, 2009
General	44. Interruption to supply of services 45. Natural disasters 46. Cultural rejection 47. Fear of uncertainties by both parties 48. Security concerns 49. Legal logjam 50. Inability to manage user involvement & expectations	Aubert *et al.*, 1997; Wang, 2002 Adeleye *et al.*, 2004; Fan, *et al.*,2011; Nakatsu & Iacovou, 2011

3.5.3 Risk management in outsourcing

The risk factors identified from the literature will make no meaning if mechanisms are not designed to effectively manage the risks to the advantage of the outsourcing practice. Studies in the past (Cox and Lonsdale, 1997) have indicated that majority of firms are using outsourcing without any sort of guiding framework meaning that firms have often been making outsourcing decisions without regards to the implications of the risks involved. This assertion has not changed unfortunately particularly in areas like facilities management that is seen to be still evolving. Risk management in outsourcing have been treated and analysed variously in the outsourcing literature (Lonsdale, 1999; Adeleye *et al.*, 2004; Hoecht and Trott, 2006; Paravastu, 2007; Farneti and Young, 2008).

The risk management model developed by Lonsdale (1999) took into consideration the understanding of the sources of competitive advantage for a firm and the inherent dangers of dependency on the supplier. The author argues that first; organisations must ensure that the resources or capabilities outsourced are not those that are responsible for the present or more importantly, the future competitive position of the firm and second; the lack of awareness of how firms can become dependent on suppliers has caused problems. The author then reported three ways in which

dependency can emerge. They are; outsourcing in a limited supply; poor internal alignment and contractual incompetence in the face of different degrees of asset specificity. The most notorious example of outsourcing critical activities the author warns is probably IBM's decisions in the 1980s to outsource the resources and capabilities that gave birth to Microsoft and Intel.

Raz and Michael (2001) in particular suggested a process consisting of two main phases; risk assessment which include identification, analysis and prioritization and risk control which include risk management planning, risk resolution and risk monitoring, tracking and corrective action. According to Rothman (2003), it involves; preparing for outsourcing; service provider selection; structuring the outsourcing deal; deal negotiation; transition and service provider governance. Risk assessment therefore consists of; assessing the loss due to undesirable outcomes which include identifying the potential undesirable outcomes and evaluating the magnitude of the potential loss due to each negative outcome and assessing the risk probability which include identifying the risk factors that might lead to undesirable outcomes, identifying the link between risk factors and undesirable outcomes and assessing the extent to which each factor is present.

Whitmore (2006) on the other hand posits that there are several steps that can be taken to assess and manage risks. He identified five steps as follows: The first is the vetting of potential vendors. This involve taking a closer look at the number of risk factors that can help an organization establish some of the criteria it may use in selecting outsourced suppliers, vendors and distributors of its products and services. Among the risk factors to consider for potential vendors are; single point of failure within the value chain; transitional risk; value risk; financial risk; innovation risk; complexity risk; hazard risk; socio-economic and political risk. The second is the hazard identification and business continuity. Once a vendor passes the organization's background check and meets its other criteria, it will still need to consider potential business-impact issues. The third is designing a first party insurance programme. This is to protect the organization's interests in the outsourcing deal. The fourth step is to address the third party liabilities issues. These liabilities include understanding and agreeing on who controls the handling of liability claims, clarity for handling injuries to employees that occur in vendor's premises, interactions between the employees of the parties to the outsourcing contract that might be culturally and /or legally acceptable in one jurisdiction but unacceptable in another jurisdiction. The fifth step is to address the

issue of esoteric risks. These are risks outside the control of the parties and can only be addressed through the use of insurance. These include political violence/war, natural disasters, forced divesture, selective discrimination, government acts and confiscation, expropriation or nationalization of property of the service provider.

3.6 Outsourcing practices in health institutions

Health care services are those services provided to individuals or communities by healthcare services providers for the purpose of promoting, maintaining, monitoring or restoring health (WHO, 2007). Because of the growing glamour for improved health care globally, many countries are adopting health reforms, the central plank of which is a more active procurement option that sees some form of contractual arrangement between health care institutions and external providers.

Sarpin and Weideman (1999) argue that health care institutions are turning to outsourcing in an effort to maintain high standard of care and reduce cost of health provision while addressing economic realities. In this same vein, the extent of use of outsourcing in healthcare has been widely investigated in USA (Gardner, 1991; Solovy, 1998; Whooley *et al.,* 2001; Lorence and Sink, 2004; Nicholson, 2004), in UK (Mark, 1994; Smyth, 1998; Heavisides and Price, 2001; Riley, 2001), in New Zealand (Cameron, 1998; Renner and Palmer, 1999; Ashton *et al.,* 2003), in Canada (Chow and Heaver, 1994; Rivard-Royer *et al.,* 2002) , and Greece (Moschuris and Kondylis, 2006). The general conclusions from these studies indicate that healthcare organisations outsource a variety of services ranging from specialist services, logistics services and facilities management services. It also indicate that major benefits from outsourcing of these services are improved performance, cost savings, increased focus on core business and improved quality of service.

As noted earlier, although a hospital's primary aim is to provide health care services to the public, there is a wide range of non-clinical support services typically provided by FM service providers in hospitals. As Featherstone and Baldry (2000) asserted, FM is a critically important function in maintaining effective healthcare delivery despite not being a front-line service that patients and users alike are exposed to. Be that as it may, several studies have been conducted on the nature of services outsourced in hospitals.

In a survey conducted by Moore (1996), it was indicated that outsourcing in US hospitals had moved beyond traditional areas such as food preparations, laundry and housekeeping into such new areas like emergency care, substance abuse and skilled nursing, and equipment maintenance (see table 3.4). This was further corroborated by Vinning and Globerman (1999) who asserted that health care contracting out has continued to expand in US especially by hospitals, nursing homes, and health maintenance organisations.

Table 3.4: Top 20 outsourced services in US hospitals

Rank	Service	Number of hospital vendors	
		1995	1994
1	Food service	1733	1550
2	Emergency	1298	981
3	Housekeeping	718	619
4	Laundry	557	533
5	Clinical/diagnostic equipment maintenance	445	289
6	Pharmacy	436	370
7	Plant operations	341	310
8	Rehabilitation/physical therapy	308	255
9	Financial management	474	342
10	Psychiatry	211	214
11	Skilled nursing/sub-acute care	134	60
12	Security	119	100
13	Radiology	69	43
14	Gift shops	67	44
15	Managed care	47	-
16	Substance abuse	47	23
17	Accounts receivable	39	31
18	Materials management	33	26
19	Surgery	31	29
20	Anaesthesia	30	21

Source: Adapted from Moore, 1996

In many other countries such as UK, the Netherlands, New Zealand, Sweden, and Canada, the concept of outsourcing has continued to gain momentum within the health care industry. The Toronto Hospital in Canada for instance, is reported to have started outsourcing broad range of services (nutrition services, housekeeping, plant

operations and maintenance, transportation of goods and patients, materials management and logistics, and laboratory services) previously retained in-house (Stonehouse *et al.*, 1996).

Moschuris and Kondylis (2006) developed a set of services most frequently outsourced in Greek public hospitals using questionnaire survey of 43 usable responses. The authors found 9 most frequently outsourced services as cleaning (97.7%), security (51.2%), cafeteria (32.6%), legal services (25.6%), clinical/diagnostic equipment maintenance (25.6%), information services (23.3%), laundry (18.6%), laboratory services (16.3%), and food (11.6%). This corroborates findings of Vinning and Globerman (1999), and Moore (1996). However, the findings also threw in surprises as services such as laundry and food were not among the most frequently outsourced services in Greek hospitals.

Liu *et al.*, (2007) developed a list of 7 services outsourced in hospitals according to their level of contractibility. They are single versus multiple services, services with clear level of need, services the utilization of which have or have no close correlation with outcomes, services for the treatment and prevention of diseases with or without practical guidelines, and services with simple or complex technicality. The authors added that within the 7 services, there are services which are more contractible or less contractible.

In summary, the above review underscores the extent to which outsourcing has established itself as a model for health care provision in the health care industry particularly hospitals. It also indicates that most of the services outsourced can best be classified as FM services. However, despite the increasing awareness of the use of outsourcing in health care organisations as indicated above, there is a paucity of research on the concept in Nigeria.

3.7 Review of past studies on framework for outsourcing services

The outsourcing literature is populated with studies on frameworks and models for outsourcing. However, only few of these are related to the concepts of outsourcing and facilities management services. The following are a review of some of them.

The research of Hassanian and Al-Saadi (2005) developed a process model to analyse current outsourcing practice regarding asset management services. The framework defines the tasks that need to be undertaken within each process and

illustrates how and what information need to be communicated between tasks. The model consists of 5 sequential processes, with a number of supporting activities attached to each.

- Identify the asset management processes: the supporting activities include; identify core and non-core activities; assess in-house services; evaluate the organisation's preparedness for outsourcing and evaluate alternatives to outsourcing.
- Assess outsourcing of asset management services: the supporting activities include; identify outsourcing goals; forecast and evaluate the risks and benefits and identify functions for outsourcing.
- Develop outsourcing contracts: the supporting activities include; issue a request for proposal; invite contractors; evaluate contractors and negotiate contract.
- Establish procedures for transfer of asset management functions: the supporting activities are: appoint a contract holder; plan transition process; implement the plan; review the plan and set improvement.
- Establish procedures to carry out contract management: these include; perform the function; monitor performance; perform periodic function review; improve service quality and evaluate contract.

The model according to the authors is useful for standardizing process description, the activities that need to be undertaken and the methodology of how and what information needs to be communicated between activities. However there are limitations in the application of the framework. There is no clearly defined methodology for risk identification, assessment and management in the framework. Besides, the model was not subjected to any form of validation to test its workability even though the authors claimed that it is generic and can be applied to other functions.

At the same time, Mohammed and Baba (2005) proposed a framework based on the premise that outsourcing transactions involve both social and formal relationships. According to the authors, the social relationship developed from model used by Goles (2001) consist of four components namely client capabilities, vendor capabilities, relationship characteristics and quality factors. The formal or contractual framework developed from literature consist of five operational activities namely service set-up, implementation, on-going service development process, review and project close. The *service set-up* includes all activities concerned with initialisation of the outsourcing

contract. These include the description of services to be outsourced, statements on the expectations and requirements of the clients on one hand and the roles and responsibilities of the provider on the other. Also included are the price agreed between client and provider, performance expected measures and audit interval and procedures. The second operational activity in the framework is the *implementation*. This section spelt out all procedural guidelines involved in the actual implementation of the outsourcing contract. It includes service reports, standard tools for managing client-contractors-users relationships, communication channels, penalties for vendor underperformance, payment procedures and monitoring of work and performance. The *on-going development process* include all monitoring and control activities that ensures outsourcing contract conforms to laid down guidelines in the service set-up. Provision for renegotiation of outsourcing agreements and payments, mechanisms for unforeseen additional charges are part of the on-going development process. The *review* section of the framework deals with the periodic work level meetings for measuring performance and service to reaffirm outsourcing objectives. The final phase of the framework is the *project close*. Here, all issues relating to possible termination of service provider's service and fold-up together with the reasons, likely backlash and follow-up remedies are described in detail. The framework is helpful in guiding stakeholders on their contractual obligations towards outsourcing. However, it is entirely based on literature review without any evidence of testing of the framework through an empirical survey. Besides, there is no indication of any mechanism in the framework to guide stakeholders on the very important issues of decision making process and risk identification and management.

Kremic *et al.,* (2006) work is an outsourcing decision flow chart model that places benefits and risks before an organisation that is considering outsourcing as a strategy. The model gives the firm two options of "yes" and "no". If the response is "no", then that is the end. However if the response is "yes", the next prompted activity is, to evaluate the organisation's functions for possible outsourcing using factors such as costs, environment, strategy, function, characteristics and so on. Next, is to select which functions to outsource. Once this is achieved, "Continue" is then prompted. The framework lack the potential of being used for holistic outsourcing contract as there is no clear direction in the framework regarding the post decision stage of the outsourcing contract. Besides, the framework does not indicate what to do with the risks, benefits

and factors, including the underlying relationships between them. Worst still, the word "continue" in the framework means it is not definite but continuous.

Ghodeswar and Vaidyanathan (2008) framework provides a step further to the work of Kremic *et al.,* (2006) by incorporating the post decision stage of the outsourcing process. The model was developed from the works of both Brown and Wilson (2005) and Gonalgo *et al.,* 2005. In it, outsourcing process is broken down into two major stages namely outsourcing decision stage and outsourcing management stage. The outsourcing decision stage comprises the strategy, scope and negotiation. The strategic phase is the take-off for an outsourcing initiative. Here, all issues relating to objectives, scope and flexibility of the outsourcing contract as well as the estimation of total time, budget and other resources are decided. Under the scope of work, baselines and service levels expected from the vendors are established in addition to the clear delineation between the functions to be outsourced and the ones to be retained in-house. The negotiation stage culminates in the signing of contract between the host organisation and the selected vendor. The outsourcing management stage (post decision) has the implementation, management, completion and support as its components. All are coordinated to ensure effective and successful delivery of the contract initiative. For instance, management phase include monitoring performance, integrating delivery, managing partnerships and cost/budget administration while completion takes care of issues like delivery results, completing contract and end of contract. The framework is cyclical in nature in that there is a provision for the possibility of renewal of contract at the completion after evaluation of the vendor's performance. The framework is very promising, understandable and has a valuable contribution to this study. But it has some limitations. First, it is not based on any empirical data but relied on past studies of Brown and Wilson (2005) and Gonalgo *et al.,* 2005. Secondly, it is business specific and can hardly be applied in a public sector setting where the needs and opinions of the citizenry are very critical. Also, the decision factors and the likely risks are not clearly defined meaning that major specifics of the framework are not well detailed.

Recently, Kumar *et al.,* (2010) developed a close loop outsourcing decision model that deals with key enablers and barriers to successful in-sourcing (make) and outsourcing (buy). The model consist of actions, internal assessment and vendor assessment activities that will influence the decision to outsource. The internal assessment posers include;

- Is the job a core competency?
- Are in-house processes, equipment, capital and employees in place?
- Is the quality available in-house to meet customers' needs?
- Is the need short term?
- Is there employee and management buy-in?
- Does it pass the cost test?

The vendor assessment posers include;

- Are the supplier's processes, equipment and employees in place?
- Can they be developed cost effectively and support time to market goals?
- Can requirements be communicated properly and are Information system (IS) in place to communicate with vendor?
- Can communication systems be developed and integrated cost effectively?
- Are there concerns about intellectual property or of the supplier becoming a competitor?
- Can agreements and work processes be structured to protect intellectual property?
- Is the quality of the vendor going to meet customers' needs?
- Can the vendor quality be developed cost effectively and in a timely fashion?
- Will the supplier significantly affect cycle time and inventory?
- Can the vendor's supply chain be developed cost effectively and in a timely fashion?
- Is the vendor offshore?

The actions, assessments and answers are all interconnected in a closed loop in such a way that each question is prompted by a "yes" or "no". The answer then becomes the action to take. The model is explicit enough and will go a long way in assisting organisation's decision making processes. However there is a worry that most of the posers are IT specific and does not seem to address some specific needs of the outsourcing of FM services in a public sector setting. Besides, there is no proper mechanism in the model to solve the problems of risks both at the proactive and reactive levels of any outsourcing transaction.

Table 3.5: Summary of Outsourcing frameworks from Literature

Author(s)	Type	Description	Limitation(s)
Hassannain and Al-Saidi (2005)	Outsourcing framework	Consist of 5 sequential processes for outsourcing asset management services in a Saudi municipality	Outcome was not based on empirical investigation; conducted in a municipality in Saudi Arabia; what constitutes decisions and risks not clearly identified in the framework
Mohammed and Baba (2005)	Outsourcing contractual framework	Involved mainly literature review to develop best practice framework and comprises the implementation, service start-up, project close, review and on-going service development processes	Not subject to any statistical rigor; based on anecdotal evidence; no mention made of outsourcing risks inherent in facilities management services
Kremic *et al.* (2006)	Outsourcing decision support framework	Develops a decision support system that shows the typical elements of the outsourcing decision and where the motivators, benefits, risks and factors are typically encountered	Elements of outsourcing decision in the framework not exhaustive while the framework itself is inconclusive; investigated in mainly profit oriented organisations
Kumar *et al.*, (2010)	Closed loop outsourcing decision model	Using case study of a US manufacturing firm, designs business model that deals with key enablers and barriers to successful outsourcing	Case study specific; carried out in a profit oriented manufacturing firm in US; decision and risk factors not subjected on any statistical rigor;
Ghodeswar and Vidyanathan (2008)	Business process outsourcing model	Sets out processes for making outsourcing decision and outsourcing management in a business environment	Mainly theoretical procedure; decision and management variables not clearly defined; no mention of any risks or mitigation measures in the framework;
Ancarani and Capaldo	Decision making	Framework describes how	Theoretical and not

(2005)	support system	sourcing strategies can be selected for facilities management services and provides insight into the decision-making process for FM procurement in local authorities	supported by any empirical evidence; restricted to Italian market; made no mention of decision and risk variable common in any outsourcing relationship
Farkasovsky and Greda in Saaty (2005) pp. 134-156	Outsourcing decision model	An Analytical Network Process (ANP) model developed using a brainstorm approach to identify a large number of decision criteria for outsourcing	Applicable to IT development decisions; risk management processes not identified in the model; developed for business oriented environments
Yang *et al.*, (2007)	Business process outsourcing decision model	An Analytical Hierarchal Process (AHP) model that sets out decision criteria for outsourcing business processes	Mainly IT driven and focuses on decisions rather than an integration of both decision and risk mitigation support system in outsourcing

A summary of some outsourcing frameworks used for managing outsourcing decisions and risks, out of several others is indicated in table 3.5. Although most of them proved to be very useful in developing the resulting framework from this study, the process model developed by Hassannain and Al-Saidi (2005) proved to be the most beneficial. This is because such areas as identifying the process for asset management and establishment of procedure for monitoring performance were modified to suite the framework for outsourcing FM services in public hospitals. It is worth noting also that virtually all the models from the literature were developed using private oriented environments and can hardly be applicable to public sector institutions whose mandate is to provide public service above all other considerations including profit. Besides, most of them have few criteria while none of the frameworks integrated the outsourcing decision support system with a risk mitigation mechanism for the likelihood of any outsourcing risk.

3.8 Chapter summary

This chapter presented a review of extant literature on concept of outsourcing generally with emphasis on outsourcing decision and outsourcing risks. It also provided evidence to show that the increasing use of outsourcing as a strategy for improving organisational performance in both public and private organisations notably health care institutions. The chapter also reviewed some of outsourcing framework relevant to the study.

CHAPTER FOUR

PUBLIC SECTIOR INSTITUTIONS: NIGERIA'S PERSPECTIVE

4.1 Introduction

Against the backdrop of the fact that this study is investigating a research problem in a public sector setting, this chapter is devoted to the concept of public sector organisation, flowing down from a broader theoretical perspective of public sector establishments to a narrower Nigeria's perspective particularly Nigeria's health care system. It also presents a brief history of Nigeria before concluding with a general summary of key findings from literature.

4.2 Public sector organisations

Pestieau (2009) considers the public sector as a set of production units comprising of firms, programmes, agencies, departments such as social security administration, railways, national care, education and national defence among other, with each unit utilizing resources within a specific institutional and geographical entity to produce outputs. These outputs may be qualitative or quantitative and are tied to the objectives delegated to the production unit by the principal i.e. the government. This assertion about the public sector organisation has not changed but its roles have shifted focus mainly since the 1970s (Fecher and Levesque, 2008). Prior to 1970s, Fecher and Levesque (2008) posit that the Keynesian theory of macroeconomic intervention prevailed and public sector organisations played important roles as agents of the policy implementation. Keynesian theory is an economic theory named after the British economist, John Maynard Keynes and is based on the concept that in order for an economy to grow and be stable, active government intervention is required (Keynes, 1937). It can therefore be argued that public sector organisations have moved from mere interventionist agencies into what Boyne and Walker (2010) describes as providers of effective, efficient and equitable services that meet the expectations of citizens. In other words, public sector organisations are now more inclined to achieving high standards on a variety of dimensions of performance for the public good. In addition, the recent concerns about the global economy coupled with funding difficulties from governments has put much pressure on the public agencies to look into ways of rendering accountable services to the public. To put differently, accountability and performance are now the keys.

The performance of a public sector organisation is influenced by both external and internal variables (Boyne and Walker, 2010). The external variables according to the authors, include; resources allocated by higher levels of government, the size and characteristics of client population, the political ideology of national and sub-national governments and the level of support provided by political principals. What this implies is that for example, the level of financial resources allocated to a public sector organisation will impact on real resources which then impact on service performance (Boyne, 2003). The internal variables are age composition of workforce and prevailing organisational culture. In order to underscore the importance of public service performance and using evidence from 65 empirical studies, Boyne (2003) critically reviewed the determinants of public service performance. The determinants reviewed fall under five distinct theoretical perspectives namely resources, regulation, markets, organisation and management. Inferences drawn from the analysis indicate that there are inconsistencies, mixed evidence and flaws in many of the studies. However two of the five sets of performance variables came top as the most influential factors on performance: resources and management. The statistical outcome of the other three, namely financial, market and organisation were, in the words of the author "thin and/or contradictory". The paper concludes by noting that the evidence did not cover a wider range of political systems and services as they disproportionately focused on the United States and on education. However, two major outcomes of the study include the measurement metrics for resources and management found to be influential factors on performance of public sector organisations. The measurement parameters for real resources are quantity of staff, teacher/pupil ratio, number of students, number of teachers, number of doctors, number of patients and doctor/patient ratio while the measurement parameters for management include staff satisfaction, job security, staff morale and leadership quality/ability.

Boyne (2002) had earlier identified a number of factors as dimensions of service performance in the public sector as: *Quantity of outputs*; number of operations performed in hospitals, hours of teaching delivered in schools and numbers of houses built, *Quality of outputs*: speed of service, reliability of service and courtesy of staff, *Equity*: fairness of the distribution of service and cost and benefits between different groups, *Outcomes*: % of students passing examinations, % of successful treatments in hospitals and % of births and deaths as well as birth/death ratio in hospitals, *Value for money* which is cost per unit of outcome in terms of for example cost/patient and

cost/student, and finally *Customer satisfaction* measured in terms of citizens satisfied with overall service.

4.3 Theoretical Perspectives

The literature is hardly short of studies on organisational theory from diverse perspectives. However, the public sector organisation will briefly be discussed using the transaction cost theory and the principal-agent theory otherwise called the agency theory. Originally used to analyse the private enterprise, the transaction cost theory has been widely applied to the concept of public enterprise. According to Fecher and Levesque (2008), the theory colligates to the contractual and coordination relationships aimed at establishing if certain transactions can be done more efficiently using specific organisational settings such as market, hybrid, vertical integration or in-house. In this regard, the authors posit that it allows for easy determination of the most effective form of organisational setting in providing public services. For example, with the increasing desire for public sector agencies to employ ways of ensuring efficiency and effectiveness in the way resources are managed, will it be in the best interest of the public good to use the in-house or external providers to undertake transactions?

The principal agent theory, according to Fecher and Levesque (2008) is a framework used to analyse relationships within a very complex network involving the state, the regulator, the enterprises and other stakeholders such as the users or citizens. Here, the state may be the governments such as UK or Nigeria while the regulator may be agencies charged with the responsibilities of ensuring that standard specifications are followed by the public organisations. An example of such agencies may be the Nigerian Civil Aviation Authority (NCAA) in Nigeria charged with the responsibility of ensuring safety and compliance by airlines and airport agencies on matters relating to air transportation in Nigeria. Within the context of carrying out statutory obligations by public sector organisations, the principal is the public sector organisation while the agent is either the in-house staff or outsourcing external provider. In specific terms therefore, the model helps to define the control mechanisms and incentives that are used to match the action of the agents with the preferences of the principal.

4.4 Nigeria's public sector organisations

The Nigeria's public organisations after independence in 1960 were practising the Keynesian theory by being used a tool of government intervention in the

development process (Omoleke and Adeopo, 2005). Their primary purpose was to stimulate and accelerate national economic development under condition of capital scarcity and structural defects in private business organization (Omoleke and Adeopo, 2005; Adegoroye, 2006). Besides, Adamolekun (1983) justified the establishment of public organisations in Nigeria on the grounds of attainment of economic objectives. Additionally, it played crucial roles in the nation's quest for economic independence and self-reliance (Adegoroye, 2006). Most of these institutions were established to operate as quasi-commercial enterprises. The reasons adjudged for this according to (Omoleke and Adeopo, 2005) include; firstly, the normal bureaucratic machine did not lend itself to the speedy decisions essential for commercial operations, secondly; the government system of accounts was designed to facilitate close expenditure control by the legislature and not necessarily to promote operational efficiency and thirdly; commercial undertakings tend to generate an atmosphere of initiatives which bureaucratic rigidity may not allow. Arising from the above, the philosophy has been that, in the absence of high cadre traditional entrepreneurs needed to propel economic development, the public sector was to be used as the effective instrument of government intervention in the economy (Obadan, 2000). However, the actual performance of these institutions has left much to be desired. As a consequence of this, many of them began to default in responding to the changing needs of a growing and dynamic economy and did not seem to possess the necessary tools for translating into reality the hope of successful commercial operations (Agagu, 2008). Perhaps this charge can be explained on the ground that the objectives of establishing them are at variance with expectations of the polity. An enterprise whose purpose is to meet social needs cannot be expected to serve profitable commercial end. Many factors were traceable to this problem of poor performance in the public organisations. According to Adeyemo (2005), they include but are not limited to firstly, economic inefficiency in the production of goods and services with high cost of production, inability to encourage innovations and unnecessary delays in the dispensing of services; secondly, ineffectiveness in the provision of goods and services such as failure to meet intended objectives and diversion of benefits to elite groups; and thirdly, rapid expansion of the bureaucracy severely straining the public budget with huge deficit and the public institutions becoming massive drain on government resources with attendant poor financial performances.

The Nigeria's public service is a product of colonization established as an instrument of the British colonialists from the 19th century (Inyang, 2008). According to Esu and Inyang (2009), the system of state enterprises begun in 1898 when the British colonial administrators undertook the railway transport project from Iddo in the city of Lagos to the hinterland. This was followed by coal mining, electricity and marine ports. All these enterprises were established primarily as administrative organs for facilitating trade and commercial activities of the colonial government. In 1949, the Fitzegerald commission into the colliery trouble articulated the idea of public corporations (Tokunboh, 1990). This concept was borrowed from the British Labour party rationalization of British coal in 1947 and electricity in 1949 (Tokunboh, 1990). Subsequently, in 1950s, the following public corporations were established in Nigeria; Nigerian Coal Corporation, Electricity Corporation of Nigeria later called National Electric Power Authority (NEPA) and now referred to as Power Holding Company of Nigeria (PHCN), Nigerian Cement Company, Nkalagwu, Nigerian Railway Corporation and Nigerian Ports Authority among others. Ever since then, over 500 public institutions have been established including the Nigerian National Petroleum Corporation (NNPC) and several hospitals (Adegoroye, 2006). Some state governments have also established public institutions to actualize their developmental goals.

4.5 Nigeria's public healthcare system

The development of the Nigerian health care system evolved from the health system of its colonial master, Britain. The public acts of 1848, 1875 and 1936 were enacted to compile social and medical statistics and to analyse social pathology of the time with specific focus on environmental, social and economic conditions of the working population (Gill, 1975; Fendall, 1986; Ademiluyi and Aluko-Arowolo, 2009). It was also to control, prevent and care for diseases, illnesses and sicknesses as a direct consequence of the 19th century Industrial revolution.

The first medical centres were established in Nigeria by Christian missionaries (Onokerhoraye, 2002), with support from the colonial administration. Ademiluyi and Aluko-Arowolo (2009) report that most of the medical centres were mobile clinics and at most community dispensary out-posts to treat primary health challenges like snake bites and minor injuries. It was to be later replaced by standard medical hospitals for such sicknesses as malaria, small pox, sleeping sickness and other major health concerns (Aluko-Arowolo, 2006).

Over the last three decades, several health reforms have been put in place to develop the Nigerian health system and bring it to internationally acceptable standards. It is said to have undergone five reforms from the traditional health care system that existed before colonial rule to what is obtainable to date (Asuzu, 2005). Of particular mention is the Alma Ata declaration, made by 134 countries and 67 international organisations in 1978 with a strategy to reach the goal of *Health for All by the year 2000* (Osazuwa-Peters, 2011). Having failed to achieve its goals, another attempt was made at the turn of the last century to fight the enormous burden of poverty, hunger, ill health, environmental degradation and natural disease that posed significant threat to peace, stability and development of the world.

In September 2000, the UN "millennium development goals declaration" was adopted by 189 countries including Nigeria targeted to be reached by the year 2015, is aimed at tackling poverty and hunger, ill-health, gender discrimination, lack of access to clean water and environmental degradation (Enabudoso *et al.,* 2006). According to United Nation General Assembly UNGA (2000) and WHO (2007), 3 of the 8 goals, 8 of 18 targets, and 18 out of 48 indicators relate directly to health and goes to underscore the indispensability of health care as an important contributor to the overall wellbeing of citizens.

In Nigeria, the health care system is structured along primary, secondary and tertiary levels to achieve the overall health care needs of its citizens. Primary health care centres which are the custodian of the local government councils are essentially tailored towards the health needs of individuals and families in the grass root communities. The components, according to the Alma Al declaration are health education, environmental sanitation, maternal and child health, prevention, control, treatment and immunization against common diseases and injuries (Osazuwa-Peters, 2011). Secondary health institutions on the other hand, are concerned with the prevention, treatment and management of minimal complex cases while the more complicated cases are referred to the tertiary or specialist hospitals. Examples of secondary health institutions are comprehensive health centres and general hospitals while tertiary hospitals include the military referral hospitals and the teaching hospitals. Teaching hospitals also conduct researches and provide outcomes to the government as a way of influencing health policies (Ademiluyi and Aluko-Arowolo, 2009), in addition to serving as a training ground for upcoming health professionals such as doctors and nurses. Most of the secondary and tertiary health institutions are operated and funded by the federal government and states that have and run state hospitals for the public good.

Table 4.1 shows the distribution of public health care centres in the south-south geo-political zone of Nigeria as at 2004. In it, there are a total of 1851 public health institutions spread across the six states of the region with Cross River state having the lion share of 429 health institutions followed by Akwa Ibom state, while Bayelsa has the least (163). It also indicate that Akwa Ibom state has the highest number of secondary health institutions (45), followed by Edo state (34) with Bayelsa having the least (10). Edo state has 4 tertiary health centres followed by Cross River state (2), while others have 1 each. It is also instructive to observe that Rivers state with the highest population in the zone according to the National population commission 2006 census report is not among the states with the highest number of health care facilities. That notwithstanding, it is imperative that resources at the disposal of these institutions are managed efficiently for the public good. This is because as Ogaboh *et al.*, 2010 rightly argued, healthy population and workforce are indispensable tools for rapid socio-economic and sustainable development the world over.

Table 4.1: Distribution of health care facilities in South-South Nigeria

States	Population	Primary	Secondary	Tertiary	Total
Akwa Ibom	3,902,051	344	45	1	390
Bayelsa	1,704,515	142	10	1	163
Cross-river	2,882,988	406	21	2	429
Delta	4,112,445	259	25	1	285
Edo	3,233,366	254	34	4	292
Rivers	5,198,716	260	31	1	292
Total	21,034,081	1665	166	10	1851

Source: Adapted from FMH, 2004, and NBS, 2006

4.5 Brief history of Nigeria

Nigeria gained independence from Britain on October 1, 1960 and became a Republic on October 1, 1963 (Library of Congress, 2008). It is a country of approximately 150 million people, from 373 ethnic groups, each distinct with its own distinct language and culture (NPC, 2007; Adegoroye, 2006). It is presently made up of 36 states, 774 local government area councils, 109 senatorial districts, 360 federal constituencies spread across six geo-political zones (Adegoroye, 2006). It had its federal capital as Lagos before it was moved to Abuja in 1992 (Ikediashi *et al.*, 2010).

Geographically, Nigeria is located between latitude 4^{o} and 15^{o} north of the Equator and longitude 3^{o} and 15^{o} east, an area covering 923,800 sq. km with over 800km coastline on the Atlantic ocean spreading northwards through the mangrove swamps of the oil rich Niger Delta rain forest and Guinea savannah to the Sahel Savannah, prone to desert encroachment on the fringes of Niger republic (Ottong, 2010). A typical map of Nigeria showing the six geo-political zones in shown is figure 4.1.

The south-south geo-political zone is made up of 6 states namely Akwa Ibom, Bayelsa, Cross River, Delta, Edo and Rivers. It is seen as the centre of utmost importance to the Nigerian federation as crude oil, the main stay of the nation's economy is produced from this area. It is represented by the green colour in figure 4.1 and will form the research area for this study.

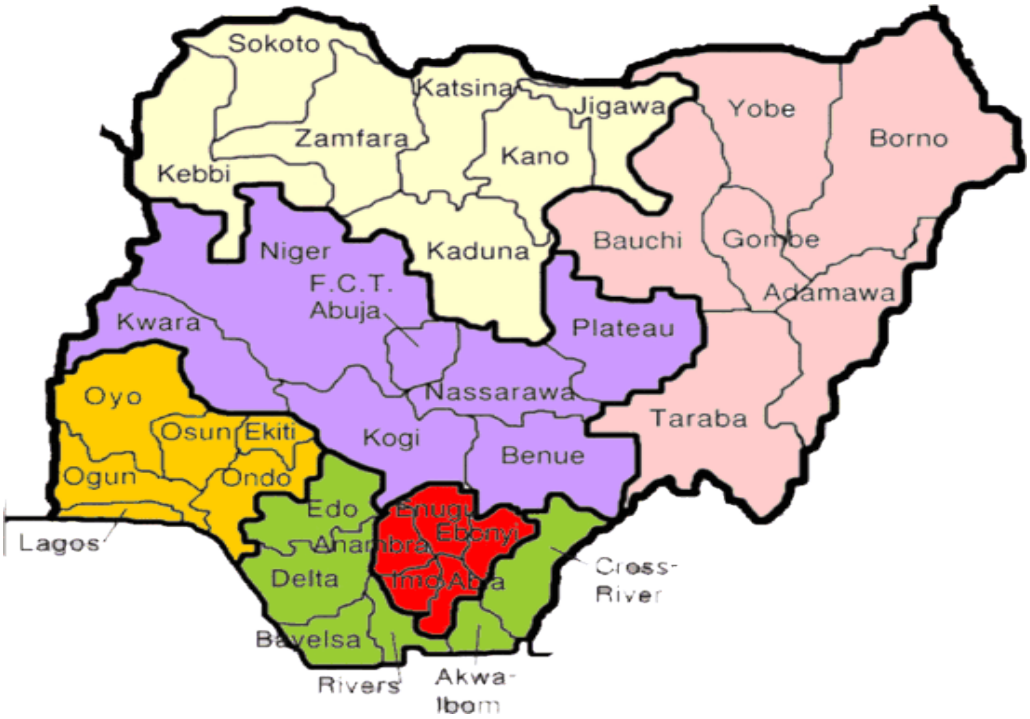

Figure 4.1: Map of Nigeria

(Adapted from Google)

A report by Ibeanu (2006) indicates that oil derived from Niger delta region of south-south region of Nigeria accounts for 50% of Nigeria's GDP, 95% of her foreign exchange earnings, and 80% of all budgetary revenues that amount to $20 billion annually. However in spite of the oil wealth, the area still remains largely under-developed as the level of infrastructural development and provision of social amenities

such as electricity, health care provision and education are very poor. In terms of health care, available figures indicate that there is one doctor per 82,000 people rising to 132,000 people in some areas especially the rural areas, which is more than three times the national average of 40, 000 (Ibeanu, 2006).

4.7 General summary of literature review

The aim of the literature review was to articulate the concepts of outsourcing, facilities management and performance of public sector organisations in general and Nigeria's public hospitals in particular using series of articles and publications from past studies. The review led to the following key findings:

1. The first stream of review was on the concept of facilities management. The review shows that even though the practice of facilities management has grown over the past years, it is grossly under-researched particularly in Nigeria where it is acknowledged to be in its infancy.

2. Outsourcing decisions are motivated by a number of factors that may be strategic (cost competitiveness for example) as well as tactical (Kroes and Ghosh, 2010). A thorough literature of existing research was conducted to identify factors that influence the decision to outsource by most organizations. A total of sixty-five (65) factors that may influence the decision to outsource by most organizations were identified and will form the variables to be used for determining the key factors that influence the decision to outsource FM services in this study. They are classified into 8 broad categories namely cost/financial, strategic and innovative related factors. Others include revenue, quality, time, service and other related. They cover a wide range of issues cutting across multi-case studies in a variety of industries such as manufacturing and Information Technology (IT) as well as other organisations. They represent the most commonly cited factors as regards outsourcing decisions but however, do not represent a comprehensive inventory of all possible factors influencing the decision to outsource. Sadly however, the factors so far identified in literature have largely been investigated under sectors other than facilities management.

3. Risk factors in outsourcing have also been largely treated in the outsourcing literature. A total of fifty (50) factors were identified from available literature

and forms the variables that would be used to determine the risk factors associated with the outsourcing of FM services. They are classified into client, contract, and vendor risk. Others are political and general risks. Indications from past studies however reveal that there is paucity of research on appropriate methodologies for identifying and managing outsourcing risks in Nigeria's public hospitals as research currently available are based on pedagogy and anecdotal evidence.

4. In order to conduct an empirical survey of FM services being outsourced in hospitals, a list of major components of FM services were developed from the available literature. Although all the components of facilities management services reviewed from past studies are very vital to the practice of facilities management, this study adopts a modified version of the cluster of support services developed by Chitopanich (2004), IFMA (2007), Opaluwah (2005) and Alaofin (2003) as the components of facilities management services for the study.
5. Although there are several frameworks available in outsourcing literature, most relied on literature review and anecdotal evidence while majority of the frameworks were built around private entities whose main objective is profit neglecting institutions that provide services for public good.
6. Indications from this literature review reveal that despite the growing popularity of outsourcing as a strategy for improved performance in public sector institutions, a wide range of knowledge gaps bordering on making the right decisions, its effect on performance and identifying the necessary risks exist. Besides, Europe, North America and recently South East Asia have retained the focus of outsourcing studies with little or no attention paid to the developing economies such as Nigeria.

This study proposes to address these identified knowledge gaps by first identifying the drivers of outsourcing in public institutions and then examining the relationship between these drivers and performance of the services. This study will in addition identify the risk factors associated with outsourcing as regards public sector organisations and conduct an empirical survey of FM services being outsourced in the institutions. The outcome of these investigations will then be used to develop a process model for outsourcing facilities management services in public hospitals

CHAPTER FIVE

THEORETICAL DEVELOPMENT AND CONCEPTUAL FRAMEWORK

5.1 Introduction

The previous chapters under the literature review reviewed past studies on the concepts of outsourcing and facilities management and uncovered the importance and relationships between the two as strategies for improving performance of organisations. To buttress this, 65 factors that influence the decision to outsource by organisations, 50 risk factors associated with outsourcing and several key findings from the literature were extracted from literature review in the previous chapters.

Theoretical framework of a research is "a loose collection of logically related assumptions, concepts or propositions that triggers thinking and research (Bogdan and Biklen, 1998). It sets out the intent, motivation and expectations for a research without which there is no basis for subsequent choices regarding methodology, methods or design (Mertens, 2009). This chapter presents the theoretical framework for the study and uses it to discuss the nature of the variables for the research as well as the underlying relationships within the variables. In this regard, the chapter explores the general theoretical perspective on outsourcing in the public sector, the theories that underline the decision to outsource (make or buy) and explains the concept of service quality and its relationship with user satisfaction, outsourcing risks as well as operationalisation of constructs for facilities management services. The hypotheses for the study are developed from the relationships between the variables before a conceptual framework defining how all the variables and the hypotheses are connected is then discussed.

The next section (5.2) theorises the rationale for outsourcing in public hospitals while section 5.3 establishes the research constructs for objective one of the study which is aimed at identifying the key factors that influence the decision to outsource facilities management services. This is followed by the development of the constructs for FM services to generate an empirical survey of outsourced services in the sampled public hospitals in section 5.4 (objective two). Section 5.5 presents a conceptual model for assessing the satisfaction of users on quality of outsourced FM services. Section 5.6 uses agency theory as the theoretical framework to develop the research variables that tests the proposition that outsourcing risks play major role in the decision to outsource

facilities management services (objective four). Finally, a conceptual framework that describes the relationship between all the variables and hypotheses for the study is then developed.

5.2 Theoretical perspectives on outsourcing in public sector organisations

The general theoretical rationale for outsourcing in the public sector relates to theories of why governments fail in their provision of services (Mills and Broomberg, 1998). Over the years, a new thinking termed "new public management" argue that the traditional organisational form of public sector bureaucracy is intrinsically inefficient and that the introduction of various market reforms will substantially improve the efficiency of public sector delivery. According to Mills and Broomberg (1998), two main schools of thought underpin this analysis. Property rights theory is of the view that the main source of inefficiency in the public service is the weakening of property rights, meaning that those who make decision about service delivery in the public service are constrained by availability of few considerations and options to allocate resources efficiently, while the public choice theory is of the view that politicians and bureaucrats who control public bureaucracies cannot be assumed to be acting in the public interest since they are more likely to serve their own interests or those of powerful interest groups (Walsh, 1995 cited in Mills and Broomberg, 1998).

A plausible implication of these analyses is that outsourcing as a market driven mechanism in the "new public management" weakens the influence of politicians and professionals over service delivery, thereby ensuring that these services are more responsive to market signals and to the public (Walsh, 1995; Moore, 1996; Mills and Broomberg, 1998). Therefore the general belief is that of seeing "the state as responsible for facilitating or ensuring service delivery, rather than being involved in the direct delivery of services itself, except in certain identifiable circumstances" (Vining and Weimer, 1990; Moore, 1996).

Since health care service championed by hospitals constitutes a major component of public service in Nigeria, it must be acknowledged that these new trends in public sector management have shown to have substantially influenced some major health services in the country. According to Mills and Broomberg (1998), an analysis of the efficiency argument of outsourcing in the context of health care systems reveals that; *first,* the replacement of direct, hierarchical management structures by outsourcing relationships between the hospitals and service providers will promote increased

transparency of prices, quantities and quality of service, as well as managerial decentralisation, both of which will enhance efficiency, and *second*, these reforms will promote increased competition among providers, while the increased level of competition will in turn enhance supply side efficiency.

5.3 Make or buy decisions

As noted in the literature, outsourcing decisions is a version of make or buy decisions in which an organisation decides to carry out an activity using in-house staff (make) or contract-out to an external service provider (buy). This is because in the words of Ventovuori (2007), "every organisation has limited resources and therefore must ensure that these limited resources are channelled towards the most important activities". The two most common theoretical approaches to make or buy decisions namely Transaction Cost Economics (Williamson, 1985) and Core Competencies Theory (Quinn and Hilmer, 1994) have been extensively discussed in chapter three of the literature review. This section uses the two theories to analyse the choices between make (in-house) and buy (outsource) decisions for facilities management services by the hospitals.

Consistent with the existing literature, this study refers to outsourcing decision factors as those motivators that drive an organisation, the public hospitals in this case, to choose outsourcing as the strategy for carrying out facilities management services. The scales developed for this study therefore measures the importance the hospitals attach to the decision factors when making decisions of whether to use in-house or external providers for facilities management services. For the purpose of the study, 65 factors were identified from the literature and grouped into 8 distinct categories. However, after pilot testing and validation of questionnaire for the study, it was adjusted to 31 factors grouped into 6 components. They include the cost-related factors (5 variables), strategy-related factors (10 variables), innovativeness-related factors (5 variables), quality-related factors (3 variables), time-related factors (3 variables), and community service-related factors (5 variables). This part of the study examines the relative importance attached to these 31 items grouped into 6 components and uses principal component analysis to determine the most influential factors that loaded significantly on each of the 6 components. It is the opinion of this study that this will provide an aggregate group of factors that are critical in influencing the decision to outsource FM services by the hospitals. The 6 components of outsourcing decision variables are discussed below:

5.3.1 Cost related factors

Organisations place considerations on the cost related factors when they want to improve on their financial standing as well as cost efficiency. Several research have previously identified cost savings and strong financial base as leading drivers of outsourcing (Wagenberg, 2003; Quelin and Duhamel, 2003; Bustinza *et al.,* 2005; Jiang, 2006; Ghodeswar and Vaidyanathan, 2008; Hsiao *et al.,* 2010; Kroes and Ghosh, 2010). According to Kroes and Ghosh, (2010), outsourcing improves cost competitiveness because it helps organisations to do away with unproductive assets, reduce capital spending and partner with a provider that can provide an activity at a lower cost. On the other hand, Ghodeswar and Vaidyanathan (2008) posit that outsourcing increases the financial standing of an organisation by reducing investment in assets, freeing up resources for other purposes and generating cash by transferring assets to the service provider. The factors relating to cost consideration include cost transparency, conversion of fixed to variable costs and elimination of fixed cost of internal staff. Others include access to outsider's lower cost structure and achievement of cost reduction with enhanced performance.

5.3.2 Strategy related factors

Focusing on strategy when making outsourcing decisions requires an institution to improve on its strategic alignment by concentrating on its core competencies and increase flexibility in order to gain competitive advantage (Lonsdale and Cox, 1998; Bustinza *et al.,* 2005; Ghodeswar and Vaidyanathan, 2008; Kroes and Ghosh, 2010). In other words, organisations are motivated to outsource their non-competitive services to external providers in order to focus on the core mandate where they possess competitive advantage. Outsourcing decision factors that support strategic aligning include focus on core competencies, increase flexibility and profitability. In addition, increase competition, multiply source from several providers in case of uncertainty and handle varying demand more effectively through economies of scale are other factors. The core mandate of the public hospitals is the provision of health care for individuals.

5.3.3 Innovation related factors

Innovativeness allows an organisation to obtain access to products, services, skills and emerging technologies (Abraham and Taylor, 1996; Wagenberg, 2003; Schniederjans *et al.,* 2005; Bustinza *et al.,* 2005; Hoecht and Trott, 2006; Ghodeswar

and Vaidyanathan, 2008). A focus on innovativeness when making outsourcing decisions also enables organisations to consider using in-house if it allows them to leverage unique skills and expertise not available to competitors (Kroes and Ghosh, 2010). To achieve this, innovativeness related factors focus on selection of vendors that will provide access to new skills, expertise and innovative ideas not available in-house. We therefore test the proposition that hospitals attach importance to innovativeness related factors when making decisions to outsource facilities management services.

5.3.4 Quality related factors

Outsourcing decisions based on quality means that organisations are motivated by the availability of a vendor with superior expertise that can improve on the quality of services previously carried out in-house (Gottfredson *et al.*, 2005; Kroes and Ghosh, 2010). The quality constructs to be used for this study include; improve performance to required quality standard, improve quality of service to users, improve mutual trust between organisation and customers, and improve responsiveness in terms of after-sales delivery.

5.3.5 Time related factors

Outsourcing decisions that focuses on time implies that organisations are motivated to outsource services to vendors who have the capability to deliver services speedily with better on-time performance (Lonsdale and Cox, 1998; Frohlich and Dixon, 2001). According to Schoenherr (2010), it also means that there is not enough time to acquire tools and techniques for in-house staff paving the way for hiring an external provider who has the resources ready to carry out the transaction at a faster pace. In this regard, we test the proposition that Nigerian hospitals place importance on timely delivery of service when making outsourcing decisions on facilities management services.

5.3.6 Social factors

Outsourcing decisions based on community service hinges on the need for the organisations (universities in this case) to improve the relationship between the organisation and the communities that benefit from its services. Several authors have emphasized the importance of stakeholder satisfaction and customer relations as part of the strategic goals of an organisation (Brackertz and Kenly, 2002; Burdon and Bhalla, 2005; Alexander and Brown, 2006). The constructs to be tested under the community

service related factors include; redirect resources from non-core activities to greater focus serving the customer, improve on stakeholders' satisfaction, enhance reliability and improve labour relations. Other constructs are; improve on corporate social responsibility and create jobs for local communities. The study therefore tests the proposition that hospitals place high premium on community service while making outsourcing decisions on facilities management services.

5.4 Facilities management services constructs

There are several types of specialist services rendered in hospitals. This study is specifically confined to facilities management services in hospitals. For example, the study is not about the principles and practice of surgery operation in a hospital theatre, but is about the smooth running of the theatre, maintenance and operation of the tools and equipment used for the surgery. It is in that line of explanation that the characterization of facilities management services for this study is based on the works of International Facilities Management Association (IFMA, 2007), Chitopanich (2004), Opaluwah (2005) and Alaofin (2003). It is developed from the perspective of facilities management services viewed as a support function (Porter, 1985) to the core mandate (Quinn and Hilmer, 1994) of an institution. The procurement and management of facilities management services in the hospitals are facilitated by the facilities management units in hospitals although they are in some cases merged with the directorate of works or the physical planning units. In choosing the constructs of facilities management services for this study, emphasis was placed on the peculiarity of the hospitals as health care institutions and based on personal interactions and interviews held with some of the key hospital administrators during pilot study. The facilities management constructs is categorized into 5 main groups namely Real estate/Property management, Maintenance and Repairs, Administration management and Office services, Space Planning, Planning and Programme management, and Employee supports.

Real estate/Property management services are concerned with the acquisition and disposal of sites and buildings, negotiation and management of leases and advice on all issues relating to property investment (Thompson, 1990; Avis, 1995). The constructs under this group are real estate/property portfolio strategy, leasing and sub-letting activities, and demolition among 6 variables. Maintenance and repair services include all maintenance and repair works within the hospitals aimed at ensuring continued

functioning of all facilities at optimal capacities. There are 6 variables under this category and include such constructs as plant repair and maintenance, facility refurbishment, waste disposal and environment management, and health and safety management. Administrative management and office services are however concerned with the administrative activities that support the smooth operations of the facilities within the hospitals and their occupants (Thompson, 1990). It includes such services as courier services, cleaning, security, car fleet control, and office furniture and stationery provision among 11 variables under this category. The fourth group of facilities management services are the employee support services that take care of the welfare needs of the hospital staff. The 6 constructs under this category include child nursery provision, recreations and catering/restroom. Others are residential accommodation, community affairs, and employee special-need services for the physically handicapped.

The 27 constructs would serve as theoretical framework for conducting an empirical survey of outsourced FM services in public hospitals. It is the view of this study that the outcome of the survey would produce a general list of services outsourced, those done by in-house team, and the services not applicable within the hospitals. The list of outsourced services would then serve as a basis for assessing user satisfaction about quality of outsourced services in public hospitals.

5.5 User satisfaction and service quality

Numerous studies have examined what constitute service quality, common indicators for measuring service quality, and the relationships between service quality and user satisfaction. To generate distinct constructs for assessing user satisfaction on service quality, a list of constructs proposed in the larger set of studies were analysed (see section 2.8 of the literature review). Based on the original 22 items of SERVQUAL (Parasuraman *et al.*, 1985, 1988) and 44 items of dimensions of quality (Van Ree, 2009), the service quality constructs for this study were condensed to 27 items grouped under 6 FM services. It has also been used in subsequent studies across different countries such as (Babakus and Mangold (1992) in USA, Hui and Zheng (2010) in Hong Kong, Jabnoun and Chaker (2003) and Badri *et al*., (2009) in UAE, Sohail (2003) in Malaysia, and Mostafa (2005) in Egypt. The constructs were developed to reflect reliability, assurance, responsiveness, empathy and tangibles in each of the 6 FM services derived from the first strand of questionnaire survey in 74 Nigeria's public hospitals.

A conceptual model (figure 5.1) is proposed to model the relationship between service quality and satisfaction level of users. The model examines the direct and indirect association between service quality (comprising services and personnel-related attributes) and user satisfaction. The arrows in the figure represent the direction of the hypothesized influence. For instance, the influence of cleaning services personnel and their services is presumed to be reflected in the observed measures of the four variables: CS10, CS11, CS12, CS13, and CS14 as depicted by directional arrows.

Figure 5.1: Proposed model of service quality versus user satisfaction

Respondents were asked to evaluate the quality of the 6 outsourced services derived from first questionnaire survey using a Likert scale that ranges from 1 = very poor to 7 = very excellent. User satisfaction is the main dependent variable and was measured with a single indicator variable on a seven point scale that ranges from 1 = very dissatisfied to 7 = very satisfied. Several past studies equally adopted this scale (Vinagre and Neves, 2008; Juga *et al*., 2010; Hui and Zheng, 2010). It is important to

point out that while multiple set of indicators are widely preferred for measuring latent variables, it has been argued that single-item observable variables can be used if there are no significant disagreement over meaning of the variable and that it is distinct and easily understood (Hair *et al*., 2010). Respondents in this study were asked to rate their overall satisfaction of quality of outsourced FM services in the hospitals using the seven point scale. It is very straight forward and closed ended question free of any ambiguity.

Specifically, this study uses structural equation modelling approach to test the hypothesis that an increase in service quality is directly associated with user satisfaction. This study therefore postulates the following hypotheses:

H01: *Quality of catering services and their personnel is positively related to Overall satisfaction*

H02: *Quality of plants and maintenance services and their personnel is positively related to overall satisfaction*

H03: *Quality of waste and environmental management services and their personnel is positively related to overall satisfaction*

H04: *Quality of security services and their personnel is positively related to overall satisfaction*

H05: *Quality of landscape maintenance services and their personnel is positively related to overall satisfaction*

H06: *Quality of cleaning services and their personnel is positively related to overall satisfaction*

5.6 Agency theory and Outsourcing risks

This study defines outsourcing risks as the likelihood of occurrence of uncertain, unpredictable and undesirable outcomes that can mare the success of an outsourcing relationship between a principal (hospitals in this case) and its agents (outsourcing vendors). Outsourcing risks has its roots in agency theory. Proponents of agency theory (Kahneman and Teversky, 1979; MacCrimmon and Wehrung, 1986; March and Shapira, 1987; Eisenhardt, 1989) argue that it is the best mechanism for measuring risk preference more easily and realistically because it is concerned with resolving two problems namely; the agency problem that arises when (1) the desires or goals of the principal and that of the agent conflict and (2) it is difficult or expensive for the principal to verify what the agent is actually doing.

In an effort to therefore develop a set of critical outsourcing risk factors for this study, 50 risk factors grouped under 5 broad categories of client risks (16 variables), vendor risks (10 variables), contract risks (12 variables), political risks (5 variables) and general risks (7 variables) were sourced from the literature. However based on the outcome of the pilot testing of the questionnaire for the study, 35 risk variables grouped under 5 broad categories were selected for the survey. The five components of outsourcing risk variables are briefly discussed below:

5.6.1 Client risk factors

The client related risks are the undesirable events as a result of the overbearing influence of the principal in the outsourcing contract which may lead to negative outcomes. 11 constructs fall under the client risks. Some of them include conflict of interest between client and vendor, inadequate planning of outsourcing policies, excessive monitoring of performance and selective discrimination of providers. We test the proposition that Nigerian hospitals consider client related risks as critical risk factors that may affect the outcome of outsourcing relationship.

5.6.2 Outsourcing contract risk factors

Contract related risks are the undesirable events as a result of perceived inadequacies in the outsourcing contract itself which may lead to either re-negotiation or outright cancellation of the outsourcing contract. For example, inadequacy of standard form of contract, inadequate definition of scope and content of services, poor system for rewarding performance (Atkin and Brooks, 2009) could hinder the smooth running of an outsourcing contract. Other constructs in this category include confidentiality leaks, high level of business uncertainties and absence of benchmark for quality. We test the proposition that Nigerian hospitals consider contract related risks as critical factors that may affect the outcome of an outsourcing relationship.

5.6.3 Vendor risk factors

Vendor related risks occur in an outsourcing relationship when the vendor is found wanting in the course of his obligations to the contract as a result of such factors as opportunistic tendencies, inexperience and lack of requisite skills, underperformance or financial impropriety (Earl, 1996; Wang, 2002; Redding, 2007; Atkin and Brooks, 2009; Fan *et al.*, 2011). Vendor opportunistic tendencies occur as a result of excessive dependency on the vendor. Other constructs in this group include vendor locked in long

agreement, improper invoicing by vendor and possibility of fraud. We therefore test the proposition that hospitals consider vendor related risks as highly critical risks in an outsourcing relationship.

5.6.4 Political risk factors

Political risks are considered to be risks arising as a result of government or regulating agencies' interference that may hinder the smooth outsourcing relationship. The constructs under this category include loss of intellectual property rights, political instability and confiscation by government of the assets of service provider. We therefore pose the question to the Nigerian hospitals; do you consider political risks as critical risk factors that may affect the outcome of an outsourcing relationship?

5.6.5 General risk factors

The risk factors that fall under the general factors include natural disasters, cultural rejection, fear of uncertainty by parties, security concerns, legal logjam, and inability to manage user involvement and expectations. Evidence from the literature indicates that they are critical in deciding the outcome of an outsourcing contract. Some of the constructs were also suggested by respondents during the pilot study. We therefore test the proposition that Nigerian hospitals consider general factors as critical factors that may affect the outcome of an outsourcing transaction.

5.7 Conceptual Framework for the Study

A conceptual research model depicting the key relationships in this study is explained as follows. The model assesses the strategic importance hospitals place on outsourcing drivers while making decision to outsource facilities management services and weighs the importance attached to the severity of risks associated with it. It then assesses the relationship between users' satisfaction and quality of FM service. The outcome is then used to construct a framework for outsourcing facilities management services.

The main theoretical contribution of this study is the interaction effects of outsourcing decisions and outsourcing risks with performance of services in an open social environment. The study advances theory by developing a process model for outsourcing facilities management services in public hospitals. The dependent variable is services' performance. It is operationalized in this study as a four-dimensional

concept consisting of cost performance, strategic performance, quality performance and time performance. To the best of our knowledge, there is no part of the current literature where this has been addressed and this study is to address this gap.

5.8 Chapter summary

In summary, the general research problem for this study was translated and refined into clear hypothetical propositions in chapter 5. More specifically, it used the literature review in chapters 2, 3, and 4 to develop the theoretical framework and produced 31 items grouped into 6 latent variables for objective one, 27 constructs of FM services for objective two, 27 service quality constructs for objective three, and 35 risk items grouped into 5 components for objective four.

The next chapter of this thesis provides a detailed overview of research methodology used to test the propositions and hypotheses described in this chapter.

CHAPTER SIX

RESEARCH METHODOLOGY

6.1 Chapter overview

The previous chapter developed the theoretical and conceptual framework for the study as well as the hypotheses postulated for the study. The conceptual framework established the links and relationships between the independent and dependent variables.

This chapter discusses the research methodology for this study. It uses the "research onion" developed by Saunders *et al.*, (2009) as a guide to discuss in detail the various strategies and processes by which this research is conducted. The first is the question of the research philosophy to be adopted for the study. The scientific philosophy behind any research should have a logical effect on all stages of the research process. This chapter explains the philosophical underpinning behind this research, followed first by a brief description of the research approach, strategies and design that flows from the research philosophical underpinning. This is followed by detailed explanation of the research methods and techniques that fit the design. These include data collection and statistical analysis techniques as well as means of conducting reliability checks. A brief description of a pilot study conducted as part of this research and an overview of the study area is also contained in this chapter. The process of construction and validation of the proposed framework are briefly discussed before a summary of the research methodology is presented.

6.2 Research Philosophy

There is a general lack of unanimity in the literature on the appropriate methodology for use in construction management research (Betts and Lansley, 1993; Runeson, 1997; Seymour *et al.*, 1997; Seymour *et al.*, 1998; Wing *et al.*, 1998). That notwithstanding, construction management research has strong affiliation with social science research and it is appropriate to use the philosophical perspectives applicable in management studies for construction management research. There are two major schools of thought that define ways of thinking about research philosophy; ontology and epistemology. Thomas (2004) argues that recognising the different views of ontological and epistemological philosophy help to put the research into perspective and ensure it

avoids making unsuitable and unsubstantiated claims for its results, overestimating what research can achieve by way of truth, certainty and universality.

Ontology is concerned with; the nature of reality (Saunders *et al.,* 2009), the theory of what there is (Trigg, 2001), and the nature of the phenomena, what exists, reality and the nature of the world (Flew, 1984). The three definitions agree that ontology is about the nature of reality. According to Burrell and Morgan (1979), there are two ontological assumptions; namely realism and nominalism. In realism, ontological reality exists independent of human consciousness and cognition. The essence of realism in the words of Saunders *et al.,* (2009) is that "what the senses show us as reality is the truth and that; objects have existence independent of the human mind". To the researcher, the assumption underpins the collection of data and the understanding of those data. Bryman (2004) asserts that realism also known as objectivism views organisational cultures as repositories of widely shared values to which individuals have to conform. In other words, it deals with the social construct of a public hospital for instance (research problem for this study), in which employees, patients and other users of its services are pressured to conform to the rules of the institution thereby subservient to the collective behaviour of the hospital. Objectivism therefore describes the ontology orientation of this research. While in nominalism, reality is simply a product of our minds, a projection of our consciousness and cognition with no independent status. In other words, truth depends on who establishes it while facts are all human creations (Easterby-Smith *et al.,* 2008).

Epistemology on the other hand concerns what constitute acceptable knowledge in a field of study (Saunders *et al.,* 2009), the relationship between the reality and the researcher (Burrell and Morgan, 1979), and the general set of assumptions about the best ways of inquiry into the nature of the world (Easterby-Smith *et al.,* 2008). The two epistemological assumptions put forward by authors are positivism and interpretivism. Positivism is concerned with the natural (nomothetic) sciences which aim to observe the empirical world in a natural manner through the accumulation of objective data, and explains generally the laws and regulations that govern the investigated phenomena (Burrell and Morgan, 1979; Easterby-Smith *et al.,* 2008; Creswell, 2009). However opponents of this assumption argue that the primary weakness of positivism is the inability to generate a reliable causal explanation in an open social system (Ventuvuori, 2007) such as the hospital environment which just like other social environments is generally adjudged to be unstable, while the presence of human beings with their

reflexive and unpredictable behaviour makes the use of positivism approach unrealistic. Interpretivism view assumes that there is no natural foundation for knowledge since all observations are value and theory driven (Burrell and Morgan, 1979). Related to this concept is social constructionism developed by philosophers during the last half century in reaction to the perceived drawbacks of positivism.

According to Easterby-Smith *et al.*, (2008), the idea of social constructionism developed by Berger and Luckman (1966), Watzlawick (1984) and Shotter (1993) focuses on the ways that people make sense of the world especially through sharing their experiences with others via the medium of language. In other words, social actors within establishments play active part in shaping the social characteristics of their organisations. It should however be quickly pointed out that both ontological and epistemological assumptions are interlinked. This study therefore argues that it is difficult to focus solely on one assumption without addressing the other if an all-inclusive interpretation is to be accorded of the assumptions underlying any research. In this regard, this study is inclined to both positivism and interpretivism ideologies.

Falqi (2011) reports that there are three methodological paradigms associated with construction management research. They are positivism, interpretivism and combined or pragmatic approach. The positivism paradigm is based on realist ontology and objectivist epistemology, and usually takes the form of deductive research, making use of quantitative techniques to test existing theory in order to increase the predictive understanding of a phenomenon. In contrast, the interpretivism approach is based on ontological nominalism and epistemological subjectivism, and takes the form of inductive research making use of qualitative techniques to understand a phenomenon through meanings that people give to them (Bryman and Bell, 2007). The combined or pragmatic research lies in between and incorporates both the positivism and interpretivism ideologies in one piece of research. For example, the use of questionnaire (quantitative) and qualitative interviews to generate data on outsourcing decision and risk factors in hospitals is a form of pragmatic research.

Table 6.1: Research Philosophical Paradigms

PARADIGM	ONTOLOGY	EPISTEMOLOGY
Substantialism	Realist	Objectivist
Subjectivism	Nominalist	Subjectivist
Empiricism	Realist	Subjectivist

Rationalism	Nominalist	Objectivist

Source: (Johnson et al., 1984)

Johnson *et al.* (1984) however cross-tabulated the two ontological and epistemological assumptions to give four major classifications (table 6.1). The table shows that the authors succeeded in simplifying the philosophical assumptions in a manner that is easier to understand and accurate in presentation.

The choice of a research philosophy depends on the nature of the research problem and the objectives of the study (Creswell, 2009). The purpose of this study is to develop a framework for outsourcing facilities management services in Nigeria's public hospitals. This involves collection and analysis of primary data (positivism), as well as building an understanding of the concepts of outsourcing and facilities management through case study interviews (interpretivism). This research is ontologically realist and epistemologically objectivist built on substantialism (testing existing theory) on one hand; and ontologically realist and epistemologically subjectivist built on empiricism (building a theory based on good practice) on the other. **Pragmatism** therefore describes the philosophical perspective behind this research. This is because as set out in the aim and objectives, this research is about balancing concrete and abstract (quantitative) data on one hand and reflection and observation (qualitative) interviews on the other. In the words of Creswell (2009), pragmatism places the research problem as central theme, and provides the underlying philosophical framework for mixed method research by applying all approaches to get a proper understanding of a research problem.

6.3 Research Approach

Every research involves the use of theory. In choosing a research approach, a researcher must decide on the research logic that will build the understanding of the phenomena under investigation (Ventuvuori, 2007). There are two common kinds of research logic; the deductive and the inductive research. According to Robson (2002), deductive research, a dominant research in the natural sciences involves developing testable propositions in the form of hypothesis from existing theory, testing the operational hypothesis in the real world, examining the specific outcome of the enquiry and if necessary modifying the theory in the light of the findings. In contrast, inductive logic of research involves gathering of data to form themes or categories, looking up for broad patterns, generalization or theories from themes or categories, and development

of generalizations or theories from past experience or literature (Creswell, 2009). However, Dubois and Gadde (2002) developed what is described as abductive logic also termed systematic combining. The authors argue that it is a beneficial research approach for assessing old theories and developing new ones because theories cannot be understood without empirical investigation and vice versa. In other words, only rarely are learning, research and knowledge generation exclusively deductive (theory driven) or exclusively inductive (data driven).

This study adopts an abductive research approach because it is neither entirely deductive nor entirely inductive but in between. The outsourcing framework to be developed (theory development) will be affected by what is discovered during data collection, analysis and interpretation (theory testing).

6.4 Research Strategy

The choice of a research strategy is guided by the research questions and objectives, the extent of existing knowledge, the amount of time and resources available, and the philosophical background underpinning the research. It is thought of as the overall direction of research including the processes by which the research is conducted. According to Saunders *et al.,* (2009), there are seven kinds of research strategies in management studies. These include experiment, survey, case study and action research. Others are grounded theory; ethnography and archival research. This study adopts survey and case studies as its research strategies.

6.4.1 Survey

According to Saunders *et al.,* (2009), survey is a popular and common strategy in business and management research and frequently used to answer who, where, what and how questions in research. It is also mostly used for exploratory and descriptive research. One of the strengths of surveys lies in its ability to allow the collection of large amount of data from a sizeable population in a highly economical way. Other advantages of surveys include; collection of quantitative data which can be analysed quantitatively using descriptive and inferential statistical tools; data collected can help to explain reasons for particular relationships between variables, and produce models of the relationships; the possibility to generate findings that are representative of the whole population; and gives the researcher more control over the research process (Saunders *et al.*, 2009). This study adopts this strategy in order to avail itself of the benefits outlined

above. This study is however not unmindful of some drawbacks associated with surveys. These include possibility of bias errors, likelihood of poor response rate, and limit to the number of questions that any questionnaire can contain if the goodwill of the respondent is not to be taking for granted. In order to confront these perceived weaknesses of surveys, this study uses large samples, reminders and if needful re-administration of questionnaire, and structuring of questionnaire free of ambiguities respectively. In addition, several reliability and validity techniques are being adopted to overcome the identified drawbacks of surveys.

In this thesis, the survey data as primary source aim to generate data on outsourced services, outsourcing decision factors and risk factors which will be used to construct the framework. On the other hand, qualitative data will be used to produce a wealth of detailed information (though on a smaller number of people and cases) about the social system under investigation (hospitals). It is the understanding of this study not to search for only one perception of reality but two perceptions which invariably lead to greater richness of information and increases reliability of the results (Voss *et al.,* 2002).

6.4.2 Case Study research

Robson (2002) defines case study as a strategy for conducting research that involves empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence. According to Yin (2003), there are four types of case study designs namely; single case holistic design, single case embedded design, multiple case holistic design, and multiple case embedded design. Single case is used by researchers to study an extreme or unique case or to test an already formulated theory. Multi case on the other hand is used to focus on the need to establish whether the findings of a particular case occur in other cases and as a consequence the need to generalise from these findings (Saunders *et al.,* 2009). Depending on the units of analysis, case studies can either be holistic or embedded.

The goal of this study is to examine the extent of the use of outsourcing as a procurement technique for facilities management services in Nigeria's public hospitals with a view to develop a best practice framework for outsourcing. It is therefore an exploratory case study based on the use of multiple sources of evidence (data triangulation). It is adopted for this research because of the dearth of information and research on the concepts of outsourcing and facilities management in Nigeria and as a

means of triangulating the outcome of the questionnaire survey component of this research.

This study contained in this thesis employs multi case design with analysis of embedded units (outsourcing and facilities management services). It is generally preferred when a research aims to examine or evaluate causal relationships (hypothesis testing), and allows the researcher to make generalization based on the observation of patterns or replication among cases (Yin, 2003). According to Yin (2009), the replication logic in multi-case study is synonymous with multi-experimental research; therefore each case must be selected to either (i) predict similar result (as in literal replication) or (ii) predict contrasting results but with anticipated reasons (theoretical replication). Four cases including three hospitals and one FM organisation were selected for the case study component within the south-south geo-political zone of the country as follows: two federal owned teaching hospitals, and one state owned specialist hospital as clients, and the FM organisation as the service provider.

As indicated earlier, proponents of case study research such as Yin (2009) argue that its strengths lie in (1) its ability to deal with a variety of evidence i.e. interviews, documents, observations and artefacts, (2) ability to encompass contextual conditions, and (3) its richness. However, critics of case study argue that findings from case study can hardly be generalised. This is particularly unjustified and unsubstantiated as according to Yin (2009), case studies are generalised to theoretical propositions and not to populations and universes. In other words, a case study aims to expand theory through analytical generalisations. Other perceived drawbacks include (1) its time consuming nature while it results to massive unreadable documents and reports, (2) it may be subject to bias by researcher, self-delusion or presentation of unreliable or invalid conclusions, and (3) lacks objectivity and methodological rigour. Part of measures adopted by the researcher to take care of the weaknesses identified above is the use of both qualitative and quantitative approaches as a means of triangulation. Triangulation refers to the use of different data collection techniques within one study in order to increase the confidence in the accuracy of findings and observations (Corbetta *et al.,* 2003; Easterby-Smith *et al.,* 2008; Saunders *et al.,* 2009).

Most academic research are time constrained (Saunders *et al.,* 2009). Cross-sectional studies are employed in survey research (Robson, 2002; Easterby-Smith *et al.,* 2008) and involve the study of a particular phenomenon or phenomena at a particular

time. This study is therefore cross-sectional and will carry out the survey at a particular period of time. Although it is generally agreed that longitudinal studies allows a researcher, in observing people or events over time to exercise a measure of control over the variables being studied, this study unfortunately does not have that luxury of time.

6.5 Research Design

Research designs are plans and procedures for research that span the decision from broad assumptions to detailed methods of data collection and analysis (Creswell, 2009) and can be categorized into qualitative, quantitative, and mixed methods.

Quantitative research method is used for testing objective theories by examining the relationship among variables (Creswell, 2009). It was originally developed in the natural sciences to study natural phenomenon (Robson, 2002; Myers and Avison, 2002) and uses the collection of quantitative factual data to study correlations between facts and its relationships with theories and findings of previous research (Fellows *et al.*, 2003). Quantitative methods use assumptions to test theories deductively, building in protections against bias and is able to generalise and replicate findings (Creswell, 2009). In contrast, qualitative research is a means of exploring and understanding the meanings individuals or group ascribe to a social problem (Creswell, 2009). It uses qualitative data from observations, interviews, questionnaire, documents and tests as well as the researcher's thoughts and responses (Myers and Avison, 2002). Myers and Avison (2002) assert that the distinction between qualitative and quantitative research is the observation of the philosophical standpoint that accepts knowledge obtained from meanings and personal experiences of individuals, and not just from objective and measurable data. In other words, those who engage in this form of reasoning support a way of looking at research that recognises inductive style, a focus on individual meaning and the importance of rendering the complexity of a situation (Creswell, 2009).

Mixed method combines or associates both qualitative and quantitative forms of research (Johnson and Christen, 2007). The approach, referred to as triangulation or multi-paradigmatic method by the authors is of two types. The first involves a situation whereby the researcher uses qualitative research paradigm for one phase of research before using quantitative research paradigm for another phase of study, or visa-vis. The second model which Creswell (2009) describes as concurrent triangulation model

involves a situation whereby the researcher uses both approaches within the same stage of research or across two stages of the same research to achieve research goal. Carter and Fortune (2004) report that 13% of published articles in the Association of Researchers in Construction Management (ARCOM) are conducted using the mixed method. An explanation for this lies in the ability of the mixed method approach to use the strengths of one to complement the weakness of the other method. It is in this line of argument that this study adopts the concurrent triangulation mixed model to facilitate triangulation aimed at achieving overall strength of the study. Specifically, qualitative method involving multi-case study interview sections is used to seek better understanding of outsourcing and facilities management, two grossly under-researched areas in Nigeria. According to Creswell (2003), it is best suited to situations where the existing knowledge base of the phenomenon under investigation is limited. It will also be used to test and validate the outsourcing framework. Quantitative method on the other hand, is used to identify and analyse the outcome of the questionnaire survey which include the decision factors, formulated hypotheses, risk factors associated with outsourcing, and service quality assessment of outsourced services. It is expected that the outcome of this will form the foundation for the construction of the framework.

6.6 Pilot Study

A pilot study is a small-scale study carried out to test the applicability of the constructs of a questionnaire, interview, checklist or observation schedule, to minimise the likelihood of respondents having problems in answering the questions; and of data recording problems as well as to allow some assessment of the questions' validity and the reliability of the data that will be collected (Saunders *et al.*, 2009; Fellows and Liu, 2008). According to Fellows and Liu (2008), the strengths of a pilot study lie in its ability to; (1) detect possible flaws in measurement procedures (2) identify unclear or ambiguous items in a questionnaire (3) alert the researcher about where the main research will likely fail and (4) indicate whether proposed methods or instruments are inappropriate or too complicated. These advantages were well utilised during the pilot study of this research.

The pilot study for this research was carried out to among others gain a pre-understanding of the phenomena under investigation and as quality control measure through reliable feedback to ensure that the questionnaire for the main survey is reliable.

It was carried out in two stages; the first in the year 2010 and the second in 2011. The outcome of the pilot:

The following are some of the findings during the pilot which is expected to help in the design of the survey instruments:

- There is a relatively low level of awareness among respondents about the practice of facilities management in the area under study. The most rated component of facilities management services in practice is real estate/property management.
- Although majority of the respondents are not familiar with the word "outsourcing", they however prefer it to be called subcontracting. The most rated outsourced component of facilities management services is janitorial services.
- A number of factors (both outsourcing decision and risk factors) were suggested by respondents. They have since been added to the factors to be used for the main survey.
- The copies of questionnaire for the pilot study of 2011 were administered in February and could only be collected back after 6 months of continuous reminders, even barely days before the researcher left for UK for this PhD programme. This is very worrisome. Some of the reasons given by respondents during interview for the delay in retrieving copies of the administered questionnaire include; the wordings of the questions in the questionnaire were too technical and needed to be simplified; non classification of the factors did not help matters; the lay-out of the questionnaire was not attractive enough.

The outcome of the pilot study was very significant and assisted with the development of the data collection instruments for the field work component of this research.

6.7 The Study Area

This research was carried out in an area known as the south-south geo-political zone of Nigeria. It comprises six states namely Akwa Ibom, Bayelsa, Cross River, Delta, Edo and Rivers as shown in figure 6.1**.** The states fall under the Niger Delta region known for its richness in oil. 95% of Nigeria's foreign exchange earnings come from oil which underscores the huge significance of the area to the nation's survival.

The states are contiguous, sharing similar characteristics in terms of culture, ways of life and with relatively high concentration of oil exploration companies.

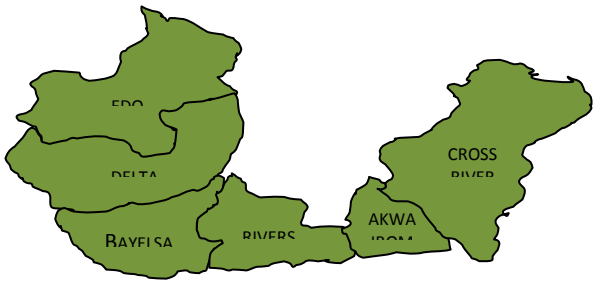

Figure 6.1: South-south geopolitical zone of Nigeria

The adoption of these states for the study was partly because it is an area well known to the researcher and also to allow for comparability, ameliorate cost and save time as stated earlier in the scope of the study. (Please see map of Nigeria showing the study area in figure 4.1 of chapter 4). The states that make up the zone are briefly described below:

Akwa Ibom state lies between latitude 4^0 and 5^0 north and longitude 7^0 and 8^0 east, and bounded on the east by Cross River state, west by Rivers state and Abia state, and south by the Atlantic Ocean. It was created out of the old Cross River state in 1987 and has a population of approximately 4million according to the 2006 national census. The state has the highest reserve of oil and gas in the country and boost of two major sea ports in the Atlantic Ocean and an international airport in the capital city of Uyo. It has a total of 390 public hospitals and primary health care centres with several others on-going.

*Bayelsa state***,** one of the newest states in Nigeria was created out of the old Rivers state in 1996 with Yenagoa as its capital, and located in between Rivers and Edo states. It is a riverine and estuarine state with several of its communities almost completely surrounded by water, making it to be accessible mostly by boat. The indigenes of the state are largely fishermen with Ijaw as their main language. It has one of the largest crude oil and natural gas reserves, while the first oil exploration in Nigeria began in the state. There are about 163 hospitals scattered in the state with most of them only accessible by boat.

*Cross River state***,** a coastal state was created in 1967 and occupies a land mass of 20,156 square kilometres. It shares boundary with Benue state to the north, Enugu and Abia states to the west, Cameroun republic to east, and Akwa Ibom and Atlantic Ocean to the south. The people of the state predominately speak Efik language while their main occupation is fishing. It has a population of 2,882,988 and prides itself as one of the most tourist destinations in Africa with such tourist attractions as the famous Obudu cattle ranch and mountain resort and the TINAPA business resort. It can be accessed by sea, land and air. It also has the highest number of public hospitals in the south-south zone with a total of 429 scattered in the 16 local government areas of the state.

Delta state, known as the "big heart" was created in 1991 out of the former Bendel state**.** It presently has a landmass of 18,050 square kilometres and lies approximately between longitudes 5^0 and 6^0 $45^{"}$ east and latitudes 5^0 and 6^0 north. It is bounded in the north by Edo state, in the east by Anambra state, south-east by Bayelsa state, and southern flank by Bight of Benin. Delta state is one of the largest producers of oil in Niger Delta and has a population of 4,098,291. Its people are predominantly farmers and fishermen and speak mainly Ibo, Itsekiri, and Urhobo languages. There are about 285 public hospitals and health care centres in the state, among which are Federal Medical Centre, Asaba, General hospital, Warri and Delta State Teaching Hospital.

Edo state is one of the six states that make up the south-south geo-political zone of Nigeria. Created in 1991, it has a landmass of 17,802 square kilometres and is bounded in the north and east by Kogi state, in the south by Delta state, and in the west by Ondo state. It is an oil producing state and noted for agricultural products like cocoa, cashew nuts and minerals like granite, quartz and lime stone for making cement. It has a population of 3,233,336 (NPC, 2007) spread across 18 local government areas of the state. The state is blessed with notable institutions of higher learning such as University of Benin, Ambrose Ali University as well as distinct and outstanding public hospitals such as University of Benin Teaching Hospital and the Central Hospital, Benin.

Finally, *Rivers state* prides itself as one of the largest economies in Nigeria, mainly because of its crude oil. The state has two major refineries, two major sea ports, airports and several industrial estates spread across the state capital, Port Harcourt. It was created in 1967 and has an area of 11,077 square kilometres. With a population of 5,198,716 (NPC, 2007), it is bounded to the south by the Atlantic Ocean, to the north by

Imo, Abia, and Anambra states, to the east by Akwa Ibom state and to the west by Bayelsa and Delta states. The state is blessed with several health institutions such as Braithwaite Memorial Specialist Hospital, Port Harcourt, and University of Port Harcourt Teaching Hospital, Port Harcourt among more than 292 hospitals.

6.8 Ethical Considerations

In this study, ethical issues were seriously given priority both before and during the research process to ensure integrity of the research. As a first step and in accordance with Heriot-Watt University (HWU) requirements, all projects or field work involving human subjects must have approval from university's research ethics committee before conducting field work. Accordingly, HWU research ethics application and risk assessment forms were filled and signed by the researcher and his main supervisor before it was submitted to the post graduate ethics review committee for ethical approval to conduct the field work and thereafter approved.

In compliance with HWU rules, a covering letter conveying the purpose of the study was attached to the questionnaire. The names of the researcher and supervisor as well as assurances of absolute anonymity and confidentiality of information to be supplied by respondents were included in the covering letter to increase respondents' confidence and to ensure respondents know whom they were dealing with. To maintain confidentiality and privacy of respondents, participants' personal information was not included in any of the study findings while data collected was not used for any purpose other than as stated in the study objectives aimed at fulfilling the requirements for a PhD thesis.

Before the field work proper, ethical approvals were also sought from all the hospitals used for the survey. This was to ensure that the intended field work m*et al*l the ethical requirements as spelt out by each of the hospitals.

6.9 Data Collection

The process of data collection involves techniques aimed at collecting opinions and valuable data from sampled units in a target population in order to address the research aim and objectives. Different methods of data collection have been identified from the literature (Corbetta, 2003; Fellows and Liu, 2008; Easterby-Smith *et al.,* 2008; Saunders *et al.*, 2009; Udofia, 2011). For the purpose of this study, a combination of questionnaire for survey and interview for case study were adopted. This is consistent

with the pragmatic view of this research that uses mixed method approach of both quantitative and qualitative methods as complementary in collecting data. This section therefore explains the population and sample units for this study as well as the sampling technique adopted to distribute copies of the questionnaire after determining the sample size. It also explains the design of questionnaire for the survey and interview questions for the case study.

6.9.1 Population and Sample

Population of a study is defined as the collection of all items whether of people or of objects or of events, that are to be considered in a given problem situation. A statistical population is either finite (for instance, the number of public hospitals in Nigeria) or infinite (the number of possible outcomes in successive tosses of a die) in any research (Udofia, 2011). The population for the survey component of this study is made up of 1,851 public hospitals spread across the south-south geo-political zone of Nigeria. Hospitals in this regard are health care facilities that provide in-patient diagnostic and therapeutic services for a variety of medical conditions for both surgical and non-surgical operations (WHO, 2007). These are described as the core activities in a hospital. However there are services designated as non-core functions in the hospitals that complement the smooth running of the core activities in the hospitals. They are the facilities management services. Such services include maintenance and repairs, janitorial services, security, drug distribution and so on. Hospitals vary in size and complexity depending on the type and extent of medical services rendered. From that perspective, public hospitals in Nigeria are classified as tertiary, secondary or primary health institutions.

Sample on the other hand, is a small part of the population observed for the purpose of making inferences about the population (Corbetta, 2003; Easterby-Smith *et al.*, 2008; Saunders *et al.*, 2009; Udofia, 2011). For a population to be scientifically sampled, Udofia (2011) argues that two requirements have to be met; first, there should be a sample frame which is a list of all persons, places, items etc. from which the sample is to be drawn, and second, measurement should be obtained with respect to the items on the sample frame. The questionnaire survey for this study is in two strands. The sample frame for the first strand was made up of all the tertiary and secondary tier hospitals in south-south Nigeria. A breakdown of the sample distribution among the six states of the zone is shown in table 6.2. The sample frame for the second strand of the

questionnaire survey research comprised target respondents from 10 selected public hospitals in the south-south geopolitical zone of Nigeria. It included one tertiary hospital and one secondary hospital from each of five of the six states in the zone. They were selected for this study because of cost and time constraints as stated in the scope of the study. Besides, preliminary investigation indicated that most outsourcing practices are undertaken in these two classes of hospitals in the zone.

The target respondents were all staff, patients and users of facilities (visitors) in the sample hospitals. A list of all personnel was obtained from the human resource department of the hospitals, while the sample respondents include the medical, non-medical as well as the administrative and technical staff of both vendor companies and client hospitals. A breakdown of the key respondents as extracted from the nominal rolls of sample hospitals is shown in table 6.2. It was not necessary to ask for a list of all patients as the researcher was only interested in the informed or enlightened patients who are strong enough to complete the questionnaire. Purposive sampling technique was therefore used to select a number of patients for the survey. It is the most common technique when the researcher needs to select the most productive sample to answer the research question (Fellows and Liu, 2008).

6.9.2 Sample size

Saunders *et al.,* (2009) posit that generalisations about population from data collected using any probability sample is based on statistical probability. Therefore the larger the sample size, the lower the likelihood of error in generalising to the population. The choice of a sample size is governed by (1) the level of certainty that the characteristics of data collected will represent the characteristics of the total population, (2) the margin of error that can be tolerated, (3) the type of analysis to be used, and to a less extent (4) the size of the population (Saunders *et al.*, 2009).

Given the above inferences, the final sample size could be developed through table of sample sizes, judgement and calculation. For the purpose of this study, the formula provided by Yamane (1967) was used to generate the sample size as follows:

$$n = \frac{N}{1 + N\,(e)^2}$$

Where n = sample size, N = Population size, e = level of precision = 0.05 at 95% confidence level.

The formula was adopted because it takes care of the confidence level as well as the level of precision required to accommodate the probable sample error. For instance, it enables the researcher define how large a sample of hospitals should be in order to be 95% confident that the probable error of using a sample rather than the entire population will not exceed 5%. Tables 6.2 and 6.3 show how the formula was applied to generate the sample size for the questionnaire survey.

Table 6.2: Sample Size for the first strand of questionnaire survey

State	Tertiary	Secondary	Sample frame	Sample
Akwa Ibom	1	45	46	41
Bayelsa	1	10	11	11
Cross river	2	21	23	22
Delta	1	25	26	24
Edo	4	34	38	35
Rivers	1	31	32	30
Total	**10**	**166**	**176**	**163**

Source: Field work, 2012

Table 6.3: Sample size for the second strand of questionnaire survey

Hospital	Type	No of beds	Sample frame	Sample
Akwa Ibom1	Federal	Not available	1005	286
Akwa Ibom2	State	Not available	480	218
Delta1	State	Not available	450	212
Delta2	Federal	Not available	528	228
Edo1	State	Not available	870	274
Edo2	Federal	Not available	1200	300
Cross River1	State	Not available	520	226
Cross River2	Federal	Not available	920	279
Rivers1	State	Not available	869	274
Rivers2	Federal	Not available	1150	297
Total	**10**		**7992**	**2594**

Source: Field work, 2013

6.9.3 Sampling technique

There are two major types of sampling techniques; the random or probability sampling technique and the non-probability sampling technique. Probability sampling refers to all forms of sampling in which the items sampled are selected according to some known laws of chance such that every item in the population has a known chance (equal or unequal) of being selected (Saunders *et al.*, 2009). Examples are simple random sampling, stratified random sampling, cluster sampling and systematic sampling. Non-probability sampling however, is non-random and involves sample methods that do not make use of chance in the selection of items (Udofia, 2011). Examples include quota sampling, purposive or judgemental sampling, snowball, self-selection and convenience sampling.

This study adopts stratified random sampling, simple random sampling and purposive sampling techniques. Stratified random sampling divides a population into series of relevant strata in such a way that each of the strata is represented proportionally within the sample. This study deployed the technique during the first strand of questionnaire survey to divide the hospitals in the south-south geo-political zone into strata based on their geographical locations (states), and applied simple random sampling to select a sample of hospitals from each state. Here, after writing the names of all the sampled hospitals for each state on cards, the cards are shuffled several times while the top card is selected each time they are shuffled until the required sample size was met (Durodola, 2009). This technique was also used for the second strand of the survey to select respondents from each of the 10 hospitals, and was adopted because it allows a consideration of the heterogeneous nature of the study population, and prevents bias in sample selection. Purposive sampling technique enables a researcher to use judgement in selecting cases that can best answer research question and meet research objectives (Saunders *et al.*, 2009). In the second strand of the questionnaire survey, the technique was used to select 5 enlightened patients, as part of target respondents from each of the ten selected hospitals for the survey. It is the view of the researcher that only enlightened patients who are particularly strong enough to complete questionnaire are required for the survey rather than all patients registered in the hospitals.

6.9.4 Questionnaire design

The use of questionnaires for social science research involves the formulation of clear and unambiguous questions targeted at respondents whose opinions and experiences are vital to a research. The questionnaire approach as the survey component of this study is very appropriate because of its inherent advantages. These include the fact that; the responses will be gathered in a standardized way thereby facilitating easier analysis, bias errors are drastically reduced and it will be relatively faster and more convenient to collect potential information from a large group of respondents.

There are two types of questionnaire for this survey. The first was structured to cater for questions relating to objectives one and two, and aimed to answer questions on outsourcing decisions and outsourced services in the sample hospitals. From an initial 65 decision factors and 40 facilities management services variables developed from the literature, a list of 35 and 27 respectively after pilot-testing were used for the survey. The target respondents for these set of questions were one top management staff from each of 163 public hospitals who formulate policies relating to whether to outsource or not. They included maintenance managers, procurement managers, as well as directors of works, physical planning and finance as the case may be.

The second questionnaire, which is the general questionnaire, is designed for users of the services in the hospitals and addressed questions relating to objectives three, four and five aimed at soliciting questions about impact of outsourcing on service delivery of the facilities management services currently being outsourced in the hospitals, the perception of users on quality of outsourced FM services, as well as the probability and severity of risks associated with outsourcing. The target respondents include the medical, non-medical, vendor staff and administrative personnel in hospitals, as well as informed or enlightened patients within hospitals.

In order to ensure good response rate, the questionnaire for any survey should be designed to sooth the level of understanding of the target respondents while taking necessary steps to ensure that too much time is not spent answering the questions. Many authors have suggested ways of achieving this in questionnaire design. For example, Saunders *et al.,* 2009 suggested four critical areas to consider while designing questionnaire as (1) introduction of the questionnaire (2) types of questions (3) layout of

questionnaire and (4) pilot testing. While introducing the questionnaire, the topic of the questionnaire should be conveyed by a clear and unbiased title which should make the research sound interesting. Fellows and Liu (2008) suggested two ways of posing questions; namely open and closed ended. Open ended questions are used to invite respondents to elaborate without limiting the direction or otherwise controlling the conversation, while closed ended questions look for specific facts and only require a set number of responses as determined by the researcher. The authors however sounded a note of caution by suggesting that rigidity in the available responses may constrain the responses artificially, hence a response option of "other, please specify" could be used where possible. In terms of layout, Saunders *et al.,* (2009) are of the view that the best way of obtaining valid responses is to keep both the visual appearance of the questionnaire and the wordings of each question simple. These were all taken into consideration while designing the questionnaire. To ensure reliability and validity of the questionnaire for this study, copies of the draft were pilot tested as suggested by Saunders *et al.,* (2009). Ten copies of the draft were passed to hospital management experts in Nigeria, academics and fellow PhD students who were working in the same area of research. Some of the areas commented on include the time it took to complete the questionnaire, the ambiguity of questions, questions that look similar in context, and the need to make the layout attractive. These were also taken into consideration before the final draft was developed for the survey. Because the data for this study would be analysed using the SPSS software, all questions were coded and incorporated into the questionnaire.

6.9.5 Questionnaire administration

After designing, pilot-testing and amending the questionnaire, the next stage is administration of the questionnaire. In administering questionnaires, it is important to use strategies that would allow the researcher gain adequate access to sampled units in order to maximise response rate. Easterby-Smith *et al.*, (2008) identified four ways of administering questionnaires as (1) postal questionnaire survey, in which the questionnaires accompanied by self-addressed envelopes are mailed to anonymous respondents (2) structured interview in which an interviewer is present while each respondent's answer is recorded (3) web-based survey in which each respondent is sent a web address containing the online questionnaire, and asked to complete the survey online and (4) face-to-face administration, in which the questionnaires are administered personally by the researcher or his/her field assistants to respondents. The authors

however argue that each of these techniques has advantages and disadvantages. For example, postal and web-based surveys have the advantage that cost per respondent is low for large samples, while the web-based surveys can be customized for individual respondents much more easily than postal surveys. However they are susceptible to lower response rates and poorer answers because there is no personal contact with the respondents which can encourage cooperation.

This study adopts face-to-face administration of the questionnaires using field assistants/co-ordinators. Nigeria is a developing country with infrastructure challenges. The use of postal surveys is unrealistic as the postal service in this country is very poor. Besides, even though the use of internet is gaining popularity in Nigeria and most other developing countries, most of the citizens do not have access to it due to epileptic power supply, poor services amidst high charges by the internet providers. To this end, four field assistants were mobilized in each of the five states of the study area while a research liaison/co-ordinator was assigned to the researcher by each of the 10 hospitals for the second strand of the survey. Additionally, in order to ensure good response rate, the field assistants were trained and instructed to administer 5 copies of the questionnaire per day. This gave them enough time to educate the respondents on any questions in the questionnaire that required explanation.

6.9.6 Scale development

Scales used in this study include nominal, interval and ordinal (Likert) scales. Nominal scales were limited to questions that determined the survey participants' demographic characteristics such as job titles, number of staff in the hospitals, number of beds and so on. Interval scales were used for questions that bothered on participants' years of experience, budg*et al*located for outsourcing and so on. Likert scale on the other hand was used for questions relating to outsourcing decisions and risks, participants' perceptions and opinions about the impact of outsourcing on services' performance and respondents' satisfaction about quality of facilities management services. Likert scale has been widely acknowledged as an acceptable way of eliciting the strength of opinions using numbers to represent implicit meanings (Fadiya *et al.*, 2012). It has also been extensively used in the literature for general construction management research and outsourcing studies (Assaf and Al-Hejji, 2006; Kremic *et al.*, 2006).

6.9.7 Interviews

Semi-structured interview was used to collect qualitative data for this study. Generally, qualitative interviews are broadly divided into structured, semi-structured and unstructured interviews. Structured interviews, sometimes called standardised interviews use questionnaires based on a predetermined or identical set of questions to obtain data (Corbetta, 2003; Saunders *et al* 2009). The researcher asks the respondents (interviewees) the same set of questions, in the same order and using the same words. In contrast to the rigidity of the structured interviews, the unstructured interviews otherwise called open-ended interviews allow for an informal setting whereby there is no predetermined set of questions to work through (Corbetta, 2003; Saunders *et al* 2009). Instead, the interviewee is given the opportunity to talk freely about events, behaviours and beliefs in relation to the topic area.

Between these extremes lies the semi-structured interviews, sometimes referred to as guided interviews. In this type of interview, the researcher uses a list of themes and questions to be covered as a guide and uses own initiative in following up an interviewee's answer to a question. This study adopted semi-structured interviews because of its flexibility which may result in finding out unexpected and insightful information during the interview. In addition, it possesses several other advantages credited to both structured and unstructured interviews. The cases selected for the interview were selected based on patients' preference to the hospitals for major and complex medical cases, and because of the volume of activities that take place in these hospitals occasioned by first class attention accorded them by governments at both state and federal levels through highest allocation of resources, as well as impromptu donations and sponsorships by politicians and philanthropists. In that circumstance, one presumes that they are hospitals with exceptional measure of quality standard of care and services, and therefore fit enough for benchmarking purposes. This approach provided through the interview, a better understanding of best practice facilities management and outsourcing that could be used to benchmark other smaller hospitals. Attention during the interview mainly focused on facilities management practices in the hospitals, the use of outsourcing as a procurement option including the amount of resources budgeted for facilities management services and the percentage of that for outsourcing. Four (4) interviewees representing the four cases were interviewed. Full detail of analysis and result is presented in chapter 8.

6.10 Data analysis

This section presents detailed explanation of how data collected for the study was analysed. The next sub-section discusses the quantitative method used for analysing data obtained from quantitative strand of the survey. This is then followed by an explanation of how data obtained from qualitative strand was analysed.

6.10.1 Quantitative data analysis

Statistical data analysis is generally used in social science and management research to establish the plausibility of a theoretical model and to estimate the extent to which the various explanatory factors are seen to influence the dependent variable (Coorley, 1978). The primary aim of this study is to develop a model for outsourcing facilities management services in Nigeria's public hospitals. In order to achieve stated objectives, two major statistical software tools were used. For the quantitative strand of this study, Statistical Package for Social Sciences (SPSS) version 20 was used to analyse quantitative data descriptively and inferentially while Analysis Moment of Structures (AMOS) software was used to analyse some of the hypothesized models explained in chapter 5. The following sub-sections describe and provide justification for using these statistical tools and software.

6.10.1.1 Principal Component Analysis

Principal component analysis is carried out to select the most important factors affecting outsourcing decisions (objective 1) and the critical risk factors (objective 4). Principal component analysis (PCA) is used to reduce the number of variables in a data set by finding the smallest possible set of principal components that can explain most of the variances in the data set (Jolliffe, 2002; Pournara and Wernisch, 2007). PCA is generally considered for data reduction in contrast to exploratory factor analysis which is used when the research aims to discover data structure or causal modelling (Wilkinson *et al.,* 1996). This study is not about data grouping because the breakdown of the factors into specific groupings has already been done at the preliminary stage. The outsourcing decision factors for instance, were grouped into 6 categories while the risk factors were grouped into 5.

In using PCA for analysis, the data set for entry into the SPSS was first coded, ranked and labelled to produce a full data base before the data matrix was inputted. They were then transformed into standard scores yielding a matrix of standard scores.

The zero correlation analysis of each variable was then carried out yielding a matrix of correlation coefficients. This was followed by extraction of the loadings and Eigen values of the correlation matrix. The essence of this was to extract the Eigen values which became the principal components while the Eigen vectors became the component loadings. According to Udofia (2011), the maximum number of components that can be extracted in any PCA equals the total number of variables. This means that in this study for instance, 31 variables for outsourcing decision factors can produce a maximum number of 31 components. Kaiser (1960) however suggests that all components with Eigen values less than 1 should not be extracted while King (1969) posits that all components contributing less than 5% to the total explanation should be rejected since they are most likely to contain large variations traceable to bias in sampling. For the purpose of this study, extractions stopped when Eigen value is less than 1.

6.10.1.2 Structural Equation Modelling

The AMOS component of SPSS was used to model user satisfaction on quality of outsourced services in public hospitals (objective four). Structural equation modelling (SEM) is a statistical technique that allows assessment of both direct and indirect relationships among latent variables (Maruyama, 1998). It was adopted for this study to avoid excessive multi-co-linearity that could have resulted if other statistical tools such as multiple regression analysis were used. Multi-co-linearity leads to bias and unstable findings (Chinda and Mohamed, 2008), and is likely to exist in this research due to expected inter-correlations among predictors within the model constructs. Besides, SEM approach was adopted because it can incorporate multiple dependent variables, explicitly recognise error terms, and integrate theory with empirical data (Fornell and Larcker, 1981), which is virtually impossible with first generation multivariate analytical tools such as multiple regressions, factor analysis, and path analysis. Theoretically, SEM is made up of two models namely: measurement model and structural model. Measurement models assesses how well the variables measure the latent factors addressing their reliability and validity, while structural model models the relationships between the latent variables by describing the amount of explained and unexplained variance, which predicates system of simultaneous regression models (Wong and Cheung, 2005; Chinda and Mohamed, 2008). Confirmatory factor analysis (CFA) was conducted to establish confidence in the measurement model before testing the structural model. Full detail on how it was deployed in this study is explained in the next chapter.

6.10.1.3 Analysis of Variance (ANOVA)

Analysis of variance (ANOVA) is a statistical technique used to compare the means of three or more sample distributions in a population (Udofia, 2011). According to Fellows and Liu (2008), it is based on the F-test which is the ration of the variance among samples (between-groups variance) to the variance with samples (within-groups variance). The study categorises respondents into naturally occurring groups such as states, job classification, and ownership structure of hospitals. The technique was used to test if there is any significant difference in the mean of responses from the first questionnaire survey. Full detail on how it was conducted is explained in the subsequent chapter.

6.10.1.4 Kruskal Wallis test

Kruskal Wallis test is a non-parametric technique used to test difference between several independent groups in distributions which are not normally distributed (Pallant, 2010). Based on chi-square distribution, the decision rule for Kruskal Wallis test statistic is that the null hypothesis is accepted if the significant level presented as asymptotic significance is greater than 0.05 (5% level of significant difference), otherwise the null hypothesis is rejected and alternate hypothesis is accepted. It was used in this study to determine whether the mean of significance of each of the 31 outsourcing risk factors was equal across the respondents (in terms of job description) from the second questionnaire survey.

6.10.1.5 Descriptive Statistics

Descriptive statistics was used to describe samples of subjects in terms of variables or combination of variables by estimating measures of central tendency and variations (Tabachnick and Fidell, 2007). Descriptive statistical tools include mean, relative importance index, standard deviation and percentages. In this study, they were used to estimate the mean responses for outsourcing decision factors (objective one), the outcome of the empirical survey of facilities management services (objective 2) as well as the demographic details of respondents and the sample hospitals.

6.10.2 Qualitative data analysis

As earlier indicated, the qualitative strand of this study involved the use of semi-structured interviews to gather qualitative data from key hospital administrators in three

case study hospitals. Creswell (2009) asserts that qualitative data analysis involves preparing data for analysis, conducting different analyses, moving deeper and deeper into understanding the data, representing the data and making an interpretation of the larger meaning of the data. He therefore suggested a procedure involving six steps. They are:

- organise and prepare raw data (transcribing interviews and type up field notes) arranging them into different types depending on the source of information
- read through all the data and obtain a general sense of the information to reflect on its overall meaning, for example what general ideas are participants saying, what is the tone of ideas, and what is the impression of the overall depth?
- Begin detailed analysis with a coding process which is the process of organising the material into chunks or segments of text before bring meaning to the information. Then follow up by using the coding to generate a small number of themes usually 5 to 7 categories. According to Creswell (2009), these themes are the ones that appear as major findings and are often used to create headings in the findings.
- Use narrative analysis to convey the findings of analysis by discussing the themes, sub-themes and interconnecting themes by a chronology of events as in grounded theory.
- Finally, interpret the meaning of themes and description and derive a comparison of findings with information from literature, theories or other means of data collection and analysis.

The study in this thesis adopted the procedure suggested by Creswell (2009) to analyse the outcome of the case study interview sections (please see chapter seven) and used the outcome to triangulate the findings of the questionnaire survey.

6.11 Framework construction and validation

The framework for outsourcing facilities management services was developed using the outcome of data analyses in phase three of this study construct the outsourcing framework. The second part of framework construction involved testing of the applicability of the developed application using experts, practitioners and hospital administrators (Please see chapter 9 for details).

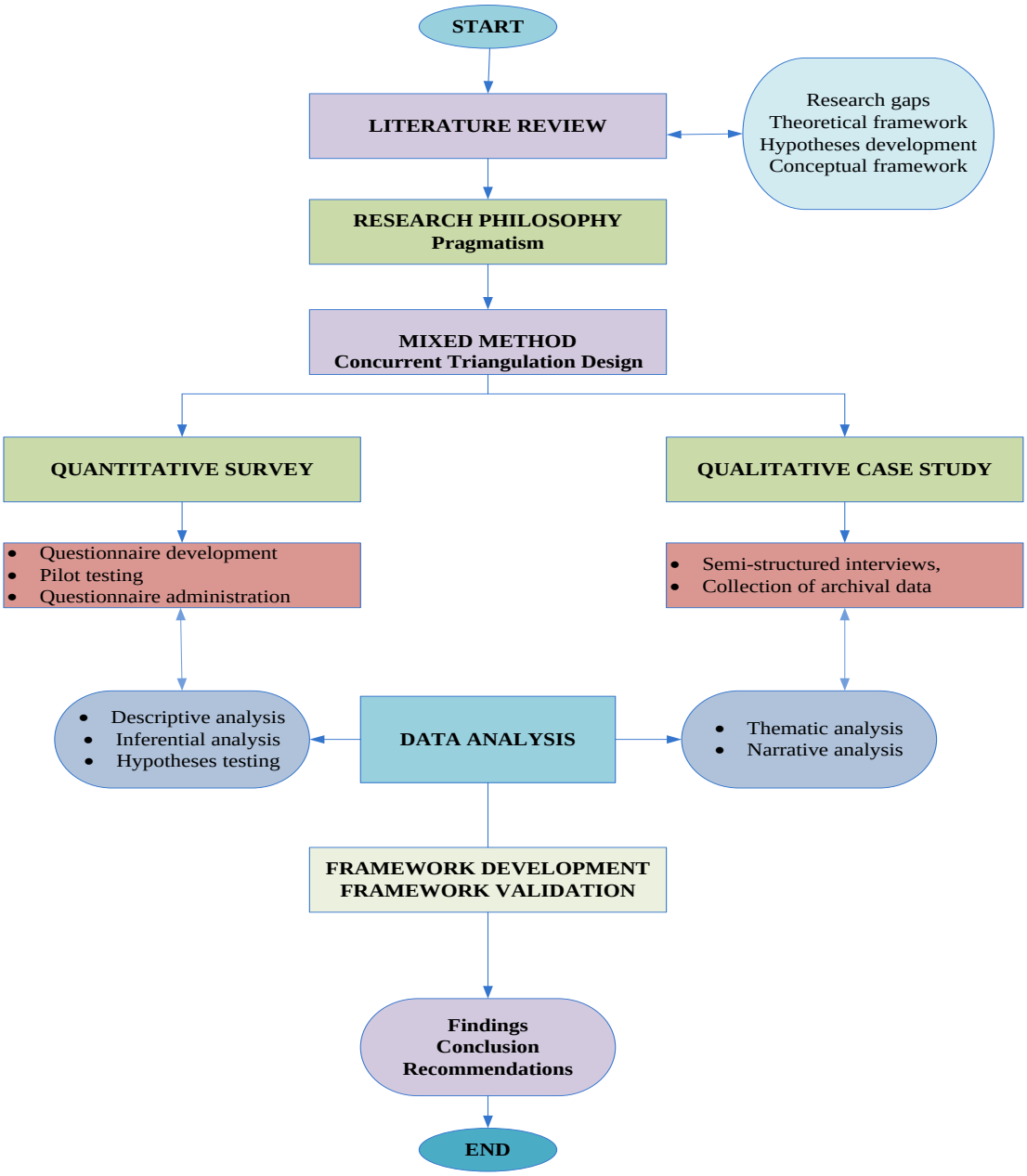

Figure 6.2: Research Plan

6.12 Chapter summary

This chapter discussed the research methodology using the research onion developed by Saunders *et al.*, (2009) as a framework. The research philosophy, research approach and strategy were explored. The research methods and techniques were explained in six sections namely research design, pilot study, population and sample, scale validation, data collection and analysis, and a brief description of the framework. Specifically, the research adopts pragmatic approach embedded in Substantialism and

empiricism as its philosophy, case study and surveys as its strategy while abductive logic was adopted as the research approach.

The study was undertaken using the plan shown in figure 6.2. It is composed of 4 phases. Phase one is the literature review and development of the research methodology. The literature review gathered background knowledge about the concepts under investigation in order to justify the research aim and objectives. This was then followed by the development of the theoretical and conceptual frameworks as well as the hypotheses for the study based on the outcome of the literature review. The methodology for the research was then developed based on inspirations from the research onion put together by Saunders *et al.,* (2009).

Phase two involved the use of concurrent triangulation design to generate data using both survey and case study for quantitative and qualitative data respectively. The survey component used questionnaire as the main instrument of data collection while case study involved interview sections and retrieving of archival data to explore in more detail the research problem and gather data that was used to compare (triangulate) the outcome of the questionnaire survey.

Under phase three, the data generated from phase two were analysed using both quantitative and qualitative techniques. Specifically, descriptive and inferential statistical tools as well as hypothesis testing models were employed to analyse the outcome of the questionnaire survey, while thematic and narrative analytical tools were employed to analyse the outcome of the interview section of the case study.

Phase four used the outcome of data analyses in phase three to construct the outsourcing framework. The second part of phase four involved testing of the applicability of the developed application using experts, practitioners and hospital administrators.

CHAPTER SEVEN

QUESTIONNAIRE SURVEY: ANALYSIS AND DISCUSSION

7.1 Introduction

The previous chapter (chapter 6) reviewed the research methodology adopted for this study and provided elaborate justification for selecting appropriate methods and techniques used during the course of the study.

This chapter presents the data analysis and discussion of results emanating from two strands of questionnaire survey. The first strand targeted management staff in public hospitals and was conducted between July and September, 2012, while the second strand targeted the general users of FM services in the sample hospitals and was conducted between March and April, 2013. As noted in previous chapter, the study contained in this thesis is a pragmatic research that employs the use of both qualitative and quantitative methods of research as way of fostering triangulation. The quantitative method involved the use of questionnaire survey while the qualitative strand (chapter 8) involved the use of interview in a multi-case study setting.

The chapter is structured as follows: section 7.1 introduced this chapter; section 7.2 discusses development, reliability and validation of scales used for the questionnaire survey; section 7.3 reports on analysis of the sample characteristics for the first strand of survey; section 7.4 focuses on determination of key factors that influence the decision to outsource FM services; section 7.5 reports on analysis and discussion of the outcome of empirical survey of outsourced FM services in the sample hospitals are presented; section 7.6 presents sample characteristics as well as non-bias estimation for the second strand of questionnaire survey; section 7.7 focuses on analysis and discussion of the SEM model on satisfaction of hospital users on quality of outsourced FM services; section 7.8 assesses the criticality of risks associated with the decision to outsource FM services. Finally, section 7.9 discusses summary of findings from the questionnaire survey and the implications for the proposed outsourcing framework as well as its implications for wider knowledge and practice in general.

7.2 Scale development, reliability and validation

The process of scale development, reliability and validation in this research effort involved the leverage of existing theories found in extant literature and input from

academic experts and FM practitioners in Nigeria and UK to develop the constructs and related items.

7.2.1 Scale development

In line with goals of this research, several scales were developed to measure the distinct characteristics related to outsourcing decisions, FM services, service quality indicators, and outsourcing risks. Specifically, the scales assess the strategic importance hospitals place on outsourcing drivers while making decision to outsource FM services and weigh the importance attached to the severity of risks associated with it. They also assess the relationship between users' satisfaction and quality of FM services outsourced. It is to be noted that the constructs and items used for this study are theoretically grounded using emerging literature in the relevant domains.

7.2.2 Reliability and validity

Reliability according to Easterby-Smith *et al.* (2008) is the extent to which the data collection and analytical techniques will yield consistent findings. Alpha values greater than 0.7 are regarded as sufficient (Pallant, 2004; Chan, 2005). To demonstrate the reliability of scales for ranking outsourcing decision, service quality indicators and risk factors, Cronbach's coefficient was used to examine the internal consistency of the scales. All the values were above the 0.7 threshold (see table 7.1) indicating the scales for this study are reliable.

Table 7.1: Reliability statistics result

Item description	Cronbach's alpha	Number of items
Outsourcing decision factors	0.780	31
Service quality indicators	0.809	27
Outsourcing risk factors	0.854	35

Oppenheim (1992), and McQueen and Knussen (2002) however suggested four tests of validity for survey research. They are content validity also known as logical validity, face validity, criterion validity and construct validity. Content validity seeks to test precisely the illegibility or otherwise of the contents of the phenomenon under investigation. Face validity ensures that a test measures what it was set out to measure. Criterion validity is a measure of how well one variable or a set of variables predict an outcome based on information from other variables of the study. Finally, construct

validity test how well the constructs measure the theoretical concept under investigation. To test for the content validity, copies of the draft questionnaire were first passed to the researcher's supervisor and three other academics, and FM experts in Nigeria and UK. The resultant validity procedure led to the adjustment of outsourcing decision constructs from original 65 to 31 and outsourcing risk constructs from original 50 to 35 variables.

7.2.3 Non response bias estimation for first questionnaire survey

A non-response bias evaluation is the process of quantifying non-response estimates aimed at identifying potential sources of non-response in a set of data. This study used t-test to examine if there is any significant difference between the means of four descriptive statistics collected over a period of three months (July to September, 2012). The result shown in panel A of table 7.2 indicates that there is no significant difference between the first 15 responses and last 15 responses (p-value is significant at $p < 0.05$). The result therefore supports an absence of non-response bias in the sample.

Table 7.2: Non response bias estimation for questionnaire survey (1)

PANEL A – COMPARISON OF EARLY AND LATE RESPONSES USING t-test COMPUTATIONS

Descriptive stats	Mean of first 15 responses	Mean of last 15 responses	t-test result (p-value)
Job description	4.65	4.48	0.72
Professional affiliation	5.21	4.99	0.61
Academic qualification	4.82	4.61	0.46
Years of experience	3.86	3.77	0.31

PANEL B- RESPONSE RATE COMPUTATIONS

States (%)	Administered Questionnaires	Returned	Usable	Response rate
Akwa Ibom	41	21	18	43.9
Bayelsa	11	5	5	45.5
Cross Rivers	22	11	10	45.5
Delta	24	17	15	62.5
Edo	35	15	16	45.7
Rivers	30	16	11	36.7
Total	**163**	**85**	**74**	**45.4**

Information regarding detailed rates of response across the six states of the study area is shown in panel B of table 7.2. A total of 85 responses were received while 11 of them were discarded due to missing data resulting in 74 usable responses. Delta state received the highest response rate of 62% while Rivers state got the least rate of 36.7%. In all, an overall response rate of **45.4%** was achieved.

7.3 Sample characteristics for first questionnaire survey

Table 7.3 made up of panels A and B indicates descriptive information about survey respondents and their hospitals for the first strand of questionnaire survey. As outlined in previous chapter, the first strand of questionnaire survey targeted management personnel in the sample who are responsible for decision making including the decision to outsource FM services in the hospitals. An examination of panel A shows that respondents who participated in the survey represent diverse set of personalities cutting across the top echelon of management in the hospitals. For instance, 27% of the 74 usable responses came from directors of administration, heads of works and heads of procurement shared 18.9%, 16.2% were directors of finance while 6 chief medical directors participated in the survey. In terms of professional affiliation, 32.4% were affiliated to Nigerian institute of management (NIM), 14.9% were affiliated to Institute of chartered accountants of Nigeria (ICAN), while 12.2% were affiliated to the Nigerian society of engineers (NSE). Overall, the result indicates that all major professional bodies in Nigeria were represented in the survey while 16.2% of the respondents had no affiliations. In terms of academic qualification, almost 50% have bachelor's degrees while a combination of more than 70% of respondents has bachelor's degree and master's degree. The result also indicates that more than 50% of respondents have a range of between 11 and 20 years' experience.

Table 7.3: Profile of sample respondents and their hospitals

PANEL A - RESPONDENTS

Metrics	Frequency	%
Job description		
Head of works	14	18.9
Director of finance	12	16.2
Head of procurement	14	18.9
Director of administration	20	27.0
Hospital secretary	8	10.8
Chief medical director	6	8.1

Professional affiliation		
Nigerian institute of management (NIM)	24	
Nigerian medical association (NMA)	5	6.8
National association of Nigerian nurses and midwives (NANNM)	1	1.4
Nigerian society of engineers (NSE)	9	12.2
Nigerian institute of architects (NIA)	2	2.7
Nigerian institute of estate surveyors and valuers (NIESV)	2	2.7
Nigerian institute of building (NIOB)	3	
Institute of chartered accountants of Nigeria (ICAN/ANAN)	11	14.9
No affiliation	12	16.2
Nigerian institute of quantity surveyors (NIQS)	5	6.8
Academic qualification		
Higher national diploma (HND)	7	9.5
Bachelor's degree	36	48.6
Master's degree	24	32.4
MBBS	4	5.4
PhD	1	1.4
FMCPH/FWCS	2	2.7
Years of experience		
6-10	27	36.5
11-20	41	55.4
21-30	5	6.8
>30	1	1.4
PANEL B - HOSPITALS		
Ownership of hospitals		
Federal	10	13.5
State	64	86.5
Class of hospital		
Tertiary/teaching hospital	10	13.5
Secondary/general	64	86.5
Approximate number of staff		
51-100	3	4.1
101-500	40	54.1
501-1000	24	32.4
>1000	7	9.5
Average number of patients		
101-500	4	5.4
501-1000	28	37.8
1001-5000	40	54.1

>5000	2	2.7
Number of beds		
11-50	4	5.4
51-100	48	64.9
101-500	20	27.0
>500	2	2.7
Value of contracts awarded in hospital per year (naira)		
10-50 million	19	25.7
51-100 million	47	63.5
101-500 million	6	8.1
>500 million	2	2.7
% allocated to outsourcing of FM services		
<5%	5	6.8
5-10%	56	75.7
11-20%	13	17.6
>20%	-	-
Outsourcing contract method in the hospital		
Total facilities management	40	54.1
Managing contractor	30	40.5
Managing agent	2	2.7
Private finance initiative (PFI)	2	2.7
States where hospital is located		
Akwa Ibom	18	24.3
Bayelsa	5	6.8
Cross River	10	13.5
Delta	15	20.3
Edo	15	20.3
Rivers	11	14.9

The sample hospitals were classified by ownership structure into federal owned and state owned, and by category into tertiary or teaching hospitals and secondary or general hospitals. Panel B of table 7.3 indicates that there were 10 federal and 64 state owned hospitals used for the survey. It also shows that all federal hospitals were teaching hospitals while all state hospitals were secondary hospitals. About 54% of respondents reported that their hospitals have staff strength of between 100 and 500 while 54% also reported average number of patients in their hospitals to be between

1000 and 5000 as at the time of conducting this survey. About 64% of respondents reported the value of contracts awarded in their hospitals to be in the range of 50,000,000 to 100,000,000 naira in a year while 76% reported that 5 to 10% of the value of contracts awarded in a year was allocated to outsourcing of FM services. Besides, total facilities management (TFM) with 54% represented the dominant method for contracting out FM services in the hospitals.

7.4 Determining the key factors that influence decision to outsource FM services

In order to determine the key decision factors, taxonomy of 65 variables was developed from the literature review. A pilot-testing was conducted with academic experts and FM practitioners to scrutinise and improve the taxonomy. The final list (please see appendix) included 31 attributes categorised into 6 components. This section focuses on preliminary investigations conducted to ensure reliability and validity of the 31 decision constructs, analysis of ranking of the factors, and principal component analysis to determine the key factors that influence decision to outsource FM services. The section also presents a detailed discussion of findings emanating from the analysis and concluding remarks.

7.4.1 Preliminary checks

Preliminary analysis was first conducted on the decision factors to ensure their suitability for further analysis. In this regard, an item-to-correlation procedure was performed on the 31 factors to check if any item in the set of factors is inconsistent with the behaviour of the others and thus can be discarded. However, all items gave satisfactory values (please see table 7.4) ranging from 0.701 to 0.898. This indicates a strong correlation among the factors and therefore deemed suitable for analysis. Besides, analysis of variance (ANOVA) was performed to investigate the possibility of difference in perception among respondents when there were grouped according to their natural groupings such as job description, professional affiliation, academic qualification and years of experience. Results of ANOVA also shown in table 7.4 indicates that there is no significant difference in the rankings of the respondents on 27 of the 31 factors while there is significant difference in 4 instances ($p<0.05$). The result therefore portrays a general agreement in the ranking of the factors.

Table 7.4: ANOVA and Item-to-total correlation values for the 31 decision factors used for the study

Determinants	Job description		Professional affiliation		Academic qualification		Years of experience		I/COR
	F	p-value	F	p-value	F	p-value	F	p-value	
To make cost transparent	1.240	0.300	1.709	0.105	2.419	0.054	0.402	0.752	0.702
To reduce investments in assets	0.792	0.559	0.287	0.976	0.989	0.431	0.106	0.956	0.715
To reduce investment in non-core functions	3.524	0.007*	1.794	0.087	5.293	0.000*	2.555	0.062	0.898
To access vendor's cost efficient system	0.218	0.954	0.426	0.916	1.584	0.176	0.228	0.876	0.709
To achieve cost reduction with enhanced performance	0.299	0.912	0.719	0.690	1.989	0.091	1.283	0.287	0.710
To focus on core competencies	1.199	0.319	0.639	0.760	1.102	0.368	0.378	0.769	0.711
To improve on strategic positioning	0.632	0.676	0.648	0.752	0.682	0.638	0.549	0.651	0.707
To increase flexibility	1.844	0.116	1.464	0.181	0.478	0.792	0.566	0.639	0.709
To multiply sourcing	0.485	0.787	1.484	0.173	1.547	0.187	1.538	0.212	0.716
To handle varying demand more efficiently	1.738	0.138	1.066	0.399	1.097	0.370	3.248	0.027*	0.723
Restricted by insufficiency in own resources	2.057	0.082	1.075	0.393	1.670	0.154	0.499	0.684	0.707
To compare performance of in-house with others	0.901	0.486	0.703	0.704	1.029	0.408	0.722	0.542	0.726
To play along with the trend in privatisation	0.140	0.982	0.798	0.619	0.445	0.816	0.485	0.693	0.732
To share risks	1.070	0.385	0.330	0.962	0.311	0.905	0.770	0.515	0.725
To limit size of staff	0.379	0.861	0.445	0.905	1.791	0.126	0.296	0.828	0.703
To gain access to new products and services	0.339	0.888	0.475	0.886	2.193	0.065	1.077	0.364	0.707
To obtain skills, expertise and ideas	0.367	0.869	0.783	0.633	3.050	0.015*	1.219	0.309	0.709
To obtain technologies not available in-house	0.401	0.847	0.686	0.719	0.096	0.992	1.072	0.367	0.717
To stimulate innovation among personnel	2.013	0.088	1.395	0.209	1.306	0.272	1.247	0.299	0.709
To permit quicker response to new needs	1.153	0.341	0.629	0.768	0.832	0.531	0.453	0.716	0.703
To improve performance standard	0.323	0.898	0.469	0.890	1.795	0.126	2.568	0.061	0.714
To improve quality of services	1.071	0.384	1.377	0.217	2.091	0.077	2.496	0.067	0.707
To improve mutual trust between hospital and customers	0.928	0.469	1.026	0.429	1.299	0.275	1.220	0.309	0.711
To improve timely delivery of services	0.301	0.911	1.261	0.275	2.524	0.057	1.033	0.383	0.726
There's no time to acquire tools and techniques	0.361	0.874	0.547	0.834	1.541	0.189	0.871	0.460	0.720
To improve process responsiveness and cycle times	2.583	0.064	2.964	0.105	2.224	0.060	3.562	0.118	0.710
To improve stakeholders' satisfaction	2.501	0.039	1.205	0.307	6.874	0.000*	3.400	0.022	0.716
To improve customer relations	2.076	0.079	1.648	0.121	0.514	0.765	0.274	0.844	0.711
To improve labour relations	1.108	0.364	0.741	0.670	0.633	0.675	0.197	0.898	0.725
To improve CSR for hospital	0.813	0.545	0.727	0.682	1.231	0.304	0.933	0.429	0.715
To create job for local communities	1.189	0.324	1.720	0.103	0.895	0490	0.773	0.513	0.708

Note: p is significant @ $p > 0.05$; * = $p < 0.05$; I/COR = Item-to-total correlation

7.4.2 Ranking of decision factors

Table 7.5 shows the mean, standard deviation as well as aggregate ranking of respondents' perception about what constitute factors that influence the decision to outsource FM services in public hospitals. The table also presents the outcome of Kruskal Wallis test carried out to examine how respondents ranked the factors across the six sates of the study area. It is preferred for non-parametric ranked data in which several independent variables are involved (Field, 2005). Majority of the factors (27 out of 31) showed strong similarity in ranking across the states indicating a good measure of agreement among respondents.

Table 7.5: Descriptive statistics for outsourcing decision factors

Determinants	Mean	SD	Rank	KW	RMK
To improve performance standard (DF21)	6.594	0.639	1	0.084	SS
To improve quality of services (DF22)	6.581	0.549	2	0.132	SS
To improve timely delivery of services (DF24)	6.567	0.983	3	0.327	SS
To improve stakeholders' satisfaction (DF27)	6.554	0.622	4	0.240	SS
To achieve cost reduction with enhanced performance (DF05)	6.500	0.646	5	0.192	SS
To make cost transparent (DF01)	6.351	0.650	6	0.017*	SS
To gain access to new products and services (DF16)	6.324	0.704	7	0.936	SS
To focus on core competencies (DF06)	6.257	0.621	8	0.057	SS
To access vendor's cost efficient system (DF04)	6.253	0.723	9	0.015*	SS
To obtain skills, expertise and ideas (DF17)	6.081	0.591	10	0.273	SS
To improve on strategic positioning (DF07)	5.878	0.548	11	0.010*	SS
To improve process responsiveness and cycle times (DF26)	5.797	0.619	12	0.509	SS
To increase flexibility (DF08)	5.743	0.759	13	0.302	SS
To improve mutual trust between hospital and customers (D23)	5.487	0.982	14	0.276	SS
To obtain technologies not available in-house (DF18)	5.487	0.925	14	0.279	SS
To improve customer relations (DF28)	5.459	0.982	16	0.057	SS
To permit quicker response to new needs (DF20)	5.405	0.809	17	0.102	SS
To reduce investment in non-core functions (DF03)	5.297	0.989	18	0.602	SS
To reduce investments in assets (DF02)	5.243	1.083	19	0.621	SS
To share risks (DF14)	4.770	1.129	20	0.221	SS
To handle varying demand more efficiently (DF10)	4.770	0.986	20	0.602	SS
To stimulate innovation among personnel (DF19)	4.703	1.235	22	0.292	SS
To create job for local communities (DF31)	4.459	1.161	23	0.075	SS
To improve CSR for hospital (DF30)	4.257	1.111	24	0.241	SS
To multiply sourcing (DF09)	4.216	1.088	25	0.108	SS
To improve labour relations (DF29)	3.811	1.201	26	0.509	NS
Restricted by insufficiency in own resources (DF11)	3.432	1.304	27	0.070	NS

There's no time to acquire tools and techniques (DF25)	3.068	1.348	28	0.063	NS
To compare performance of in-house with others (DF12)	2.811	0.932	29	0.401	NS
To limit size of staff (DF15)	2.284	1.244	30	0.151	NS
To play along with the trend in privatisation (DF13)	2.189	1.246	31	0.018*	NS

Note: *= p<0.05 at 95% confidence level; SS = significant; NS = not significant; SD = standard deviation; KW = Kruskal Wallis p-value; RMK = remark

It is obvious from the result in table 7.5 that "to improve performance standard", "to improve quality of services", "to improve timely delivery of service, "to improve stakeholders' satisfaction, and "to achieve cost reduction with enhanced performance" were rated as the top five attributes, while "to play along with the trend in privatization", "to limit size of staff", "to compare performance of in-house staff with vendor's staff, "there is no time to acquire tools and techniques", and "restricted by insufficiency in own resources" were rated as the least five attributes in that order. A benchmark of 4 which is (1+2+3+4+5+6+7)/7 was used to decide the significant and non-significant factors. To this end, 25 out of 31 factors were significant in explaining the decision to outsource FM services in public hospitals according to the survey.

Table 7.6: Selected factors showing their factors loadings and mean ratings

Group	Variables included	Group mean	Group rank
Cost related factors	To make cost transparent	5.93	2
	To reduce investments in assets		
	To reduce investment in non-core functions		
	To access vendor's cost efficient system		
	To achieve cost reduction with enhanced performance		
Strategy related factors	To focus on core competencies	4.23	6
	To improve on strategic positioning		
	To increase flexibility		
	To multiply sourcing		
	To handle varying demands more effectively		
	Restricted by insufficiency in own resources		
	To compare in-house performance with that of vendor's		
	To play along with the trend in privatisation		
	To share risks		
	To limit size of staff		

Innovation related factors	To gain access to new products and services	5.60	3
	To obtain skills, expertise and ideas		
	To obtain technologies not available in-house		
	To permit quicker response to new need		
Quality related factors	To improve performance standard	6.22	1
	To improve quality of services		
	To improve mutual trust between hospital and customers		
Time related factors	To improve timely delivery of services	5.15	4
	There is no time to acquire tools and techniques		
Social factors	To improve stakeholders' satisfaction	5.12	5
	To improve customer relations		
	To improve labour relations		
	To improve CSR for hospital		
	To create jobs for local communities		

Table 7.6 presents a summary of the mean values for each of the identified categories. It shows that quality factors topped the 6 groups, followed by cost factors, innovation factors, time factors, service to community factors, and strategy factors in that order.

7.4.3 Principal component analysis (PCA) of outsourcing decision factors

As was previously explained in chapter 6, the essence of PCA in this research is not to uncover hidden relationships in the original sets of data but to select the most representative factors in each of the six categories of decision factors, a procedure that had been adopted in previous studies (Bageis, 2007; Assaf *et al*., 2011; Jain and Nataraijan, 2011; Ikediashi *et al*., 2012). Consequently, the procedure followed the steps below:

1. Bartlett test of sphericity and Kaiser-Mayer-Olkin measure of sampling adequacy are carried out to ensure that the correlation matrix formed in the analysis is an identity matrix and KMO's MSA is not less than 0.5 (Ferguson and Cox, 1993).
2. The next step is to identify the number of components to be retained. Only factors with Eigen values greater than 1 are retained (Kaiser, 1960) while the

values of cumulative variance explained should be greater than or equal to 65 percent as suggested by Kaiser and Caffrey (1965). Besides, factors with communalities less that 0.5 are discarded. This is because factor solution should explain at least half of each original variable's variance (Pallant, 2010).

3. The rotated matrix is then examined to select factors that have significant loadings on each of the principal components. Factors with highest factor loadings are selected to represent the principal component.

The next six sections present how the procedure was adopted for this study.

7.4.4 Cost related factors (CRF)

There are 5 factors under this category. The result of PCA shows that Bartlett's test of sphericity is 89.683 while the associated significance is 0.000 meaning that the population correlation matrix is an identity matrix (see table 7.7). Besides, the value of Kaiser-Mayer-Olkin measure of sampling adequacy is 0.732, above the 0.5 threshold, thereby indicating that the criterion has been met.

Table 7.7: KMO and Bartlett's test result for cost related factors (CRF)

Test			Values
Kaiser-Meyer-Olkin measure of sampling adequacy			.723
Bartlett's test of sphericity	Approximate Chi-Square		89.683
		df	10
		Sig.	.000

According to table 7.8, the results also indicate that two components were extracted. A close inspection shows that the two extracted components had Eigen values greater than 1 while the cumulative variance explained was 71.64%. Also, table 7.9 indicates that communalities for the 5 factors under the category ranged from 0.602 to 0.766 which is above the 0.5 threshold.

Table 7.8: Total variance explained for CRF

Component	Initial Eigenvalues			Extraction Sums of Square Loadings			Rotation Sums of Square Loadings		
	Total	% of Var.	Cum. %	Total	% of Variance	Cum. %	Total	% of Var.	Cum. %
1	2.498	49.954	49.954	2.498	49.954	49.954	1.930	38.599	38.599
2	1.084	21.688	71.642	1.084	21.688	71.642	1.652	33.043	71.642
3	0.543	10.860	82.502						
4	0.466	9.321	91.822						
5	0.409	8.178	100.000						

Extraction method: Principal Component Analysis

Table 7.9: Communalities for cost related factors (CRF)

	Initial	Extraction
To instil cost efficiency	1.000	0.602
To reduce investments in assets	1.000	0.717
To reduce capital funds in non-core functions	1.000	0.766
To access vendor's cost efficient system	1.000	0.737
To achieve cost reduction with enhanced performance	1.000	0.760

Extraction method: Principal Component Analysis

Having met the criteria for total variance explained and communalities, table 7.10 gives the loading patterns in the rotated component matrix. Two factors represent the significant loadings in this category. They are (1) to achieve cost reduction with enhanced performance; and (2) to reduce capital investments in non-core functions, thus affirming the importance and influence of these two on decision to outsource FM services in hospitals

Table 7.10: Rotated component matrix for CRF

	1	2
To instil cost efficiency	0.656	0.415
To reduce investments in assets		0.825
To reduce capital funds in non-core functions		**0.869**
To access vendor's cost efficient system	0.833	
To achieve cost reduction with enhanced performance	**0.872**	

Extraction method: Principal Component Analysis
Rotation method: Varimax with Kaiser Normalization

7.4.5 Strategy related factors (SRF)

As described in chapter 5, focusing on strategy when making outsourcing decisions requires an organisation to improve on its strategic alignment by concentrating on its core competencies and increase flexibility in order to gain competitive advantage. The result of PCA for this group indicates that Bartlett's test of sphericity is 126.946 while the associated significance is 0.000 meaning that the population correlation matrix is an identity matrix (see table 7.11). Besides, the value of Kaiser-Mayer-Olkin measure of sampling adequacy is 0.587, above the 0.5 threshold meaning that the data set is suitable for factor analysis. Ten (10) factors were grouped under this category as shown in table 7.12.

Table 7.11: KMO and Bartlett's test result for strategy related factors (SRF)

Test		Values
Kaiser-Meyer-Olkin measure of sampling adequacy		.587
Bartlett's test of sphericity	Approximate Chi-Square	126.946
	df	45
	Sig.	.000

Table 7.12: Total variance explained for SRF

Component	Initial Eigenvalues			Extraction Sums of Square Loadings			Rotation Sums of Square Loadings		
	Total	% of Var.	Cum. %	Total	% of Variance	Cum. %	Total	% of Var.	Cum. %
1	2.167	21.674	21.674	2.167	21.674	21.674	1.677	16.771	16.771
2	1.652	16.522	38.196	1.652	16.522	38.196	1.626	16.259	33.031
3	1.410	14.102	52.298	1.410	14.102	52.298	1.480	14.795	47.826
4	1.219	12.188	64.486	1.219	12.188	64.486	1.385	13.845	61.671
5	1.015	10.149	74.635	1.015	10.149	74.635	1.296	12.964	74.635
6	0.791	7.914	82.549						
7	0.583	5.831	88.381						
8	0.473	4.725	93.106						
9	0.397	3.970	97.075						
10	0.292	2.925							

Extraction method: Principal Component Analysis

Table 7.12 shows that 5 components extracted had Eigen values of 2.167, 1.652, 1.410, 1.219, and 1.015 in that order, while they cumulatively accounted for 74.6% of total variance explained. Moreover, the result also indicates that communalities for the

extracted components were all above the 0.5 threshold as shown in table 7.13. An examination of the rotated component matrix produced (table 7.14) shows that the following factors were significantly loaded under the 5 components:

1. To improve strategic positioning
2. To focus on core competencies
3. To share risks
4. To compare in-house performance with vendor's staff
5. To handle varying demands more effectively

Table 7.13: Communalities for strategy related factors (SRF)

	Initial	Extraction
To focus on core competencies	1.000	0.691
To improve strategic positioning	1.000	0.763
To increase flexibility	1.000	0.753
To multiply sourcing in case of uncertainty	1.000	0.793
To handle more varying demands more effectively	1.000	0.819
Restricted by insufficiency in own resources	1.000	0.697
To compare in-house performance with vendor	1.000	0.731
To play along with privatisation	1.000	0.784
To share risks	1.000	0.756
To limit size of staff	1.000	0.677

Extraction method: Principal Component Analysis

Table 7.14: Rotated component matrix for SRF

	1	2	3	4	5
To focus on core competencies		**0.855**	0.308		
To improve strategic positioning	**0.858**				
To increase flexibility	0.851				
To multiply sourcing in case of uncertainty		0.698			
To handle more varying demands more effectively					**0.842**
Restricted by insufficiency in own resources		0.379	-0.675		
To compare in-house performance with vendor			-0.305	**0.841**	
To play along with privatisation				0.739	
To share risks			**0.845**		
To limit size of staff	0.322				0.692

Extraction method: Principal Component Analysis

Rotation method: Varimax with Kaiser Normalization

It is instructive to note that all the five factors are among the top rated (see table 7.5). Therefore, a model with the five factors is adequate to represent strategy related factors.

7.4.6 Innovation related factors (IRF)

There are also 5 factors under this category. The result of first PCA for this category indicates that Chi-square value for Bartlett's test of sphericity is 79.461 while the associated significance is 0.000 meaning that the population correlation matrix is an identity matrix (see table 7.15). Besides, the value of Kaiser-Mayer-Olkin measure of sampling adequacy is 0.571, above the 0.5 threshold meaning that the data set is suitable for factor analysis.

Table 7.15: KMO and Bartlett's test result for innovation related factors (IRF)

Test		Values
Kaiser-Meyer-Olkin measure of sampling adequacy		.571
Bartlett's test of sphericity	Approximate Chi-Square	79.461
	df	10
	Sig.	.000

However, the factor "to obtain technologies not available in-house" had a score of 0.414 in the communalities extraction which is below the recommended value of 0.5. It was therefore discarded before a second trial was conducted. The diagnosis remained significant as Bartlett's test of sphericity was 62.743 while KMO gave a value of 0.506. The result shown in table 7.17 indicates that communalities for the four factors were satisfactory while two components were extracted as shown in table 7.16.

Table 7.16: Total variance explained for IRF

	Initial Eigenvalues			Extraction Sums of Square Loadings			Rotation Sums of Square Loadings		
Component	Total	% of Var.	Cum. %	Total	% of Variance	Cum. %	Total	% of Var.	Cum. %
1	1.875	46.878	46.878	1.875	46.878	46.878	1.719	42.986	42.986
2	1.058	26.457	73.335	1.058	26.457	73.335	1.214	30.349	73.335
3	0.810	20.252	93.586						
4	0.257	6.414	100.000						

Extraction method: Principal Component Analysis

Table 7.17: Communalities for innovation related factors (IRF)

	Initial	Extraction
To gain access to new products and services	1.000	0.872
To obtain skills, expertise, and ideas	1.000	0.857
To stimulate innovation among personnel	1.000	0.564
To permit quicker response to new needs	1.000	0.642

Extraction method: Principal Component Analysis

The two extracted components accounted for 73.3% of total variance explained while their Eigen values were greater than one. An examination of the rotated component matrix (table 7.18) shows that two factors were significantly loaded under the 2 components. They are "to gain access to new products and services" and "to permit quicker response to new needs" and are therefore selected to be the most representative of the group.

Table 7.18: Rotated component matrix for IRF

	1	2
To gain access to new products and services	**0.932**	
To obtain skills, expertise, and ideas	0.914	
To permit quicker response to new needs		**0.799**
To stimulate innovation among personnel		0.742

Extraction method: Principal Component Analysis

Rotation method: Varimax with Kaiser Normalization

7.4.7 Quality related factors (QRF)

This group originally had three factors. The result of analysis shows that Chi-square value for Bartlett's test of sphericity is 14.732 while the associated significance is 0.000 meaning that the population correlation matrix is an identity matrix (see table 7.19). Besides, the value of Kaiser-Mayer-Olkin measure of sampling adequacy is 0.520, above the 0.5 threshold, thereby indicating that the first criterion for factor analysis was met. The result also indicates that two components with Eigen values greater 1 were extracted while they accounted for 80.2% of total variance explained as shown in table 7.20.

Table 7.19: KMO and Bartlett's test result for quality related factors (QRF)

Test		Values
Kaiser-Meyer-Olkin measure of sampling adequacy		.520
Bartlett's test of sphericity	Approximate Chi-Square	14.732
	df	3
	Sig.	0.000

Table 7.20: Total variance explained for QRF

	Initial Eigenvalues			Extraction Sums of Square Loading		
Component	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumul. %**
1	1.484	49.451	49.451	1.484	49.451	49.451
2	1.122	30.741	80.192	1.122	30.741	80.192
3	0.594	19.808	100.000			

Extraction method: Principal Component Analysis

Table 7.21 shows that "to improve mutual trust between hospital and customers" had very low communalities loading of 0.373 which is below 0.50. It is however important to emphasise that the other two factors were among the five top rated decision factors by respondents (see table 7.5) which is confirmed by their strong loadings under the two extracted components (table 7.22). Therefore "to improve performance standard" and "to improve quality of services" are selected to represent this group of factors based on their significant loadings in the component matrix.

Table 7.21: Communalities for quality related factors (QRF)

	Initial	Extraction
To improve performance standard	1.000	0.877
To improve quality of services	1.000	0.688
To improve mutual trust between hospital and customers	1.000	0.373*

Extraction method: Principal Component Analysis

Table 7.22: Component matrix for QF

	1	2
To improve performance standard	**0.823**	0.455
To improve quality of services		**0.659**
To improve mutual trust between hospital and customers	0.611	

Extraction method: Principal Component Analysis

7.4.8 Time related factors (TRF)

Time related factors had three original factors grouped under this category of decision factors. The result of analysis shows that Chi-square value for Bartlett's test of sphericity is 8.457 while the associated significance is 0.000 meaning that the population correlation matrix is an identity matrix (see table 7.23). Besides, the value of Kaiser-Mayer-Olkin measure of sampling adequacy is 0.531, above the 0.5 threshold, thereby indicating that the first criterion for factor analysis was met. The result also indicates that two components with Eigen values greater 1 were extracted while they accounted for 77.04% of total variance explained as shown in table 7.24.

Table 7.23: KMO and Bartlett's test result for time related factors (TRF)

Test		Values
Kaiser-Meyer-Olkin measure of sampling adequacy		0.531
Bartlett's test of sphericity	Approximate Chi-Square	8.457
	df	3
	Sig.	0.000

Table 7.24: Total variance explained for TRF

	Initial Eigenvalues			Extraction Sums of Square Loadings		
Component	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumul. %**
1	1.371	45.689	45.689	1.371	45.689	45.689
2	1.141	31.352	77.041	1.141	31.352	77.041
3	0.689	22.959	100.000			

Extraction method: Principal Component Analysis

Although table 7.25 indicates that the factor "no time to acquire tools and technologies in-house" scored less than the 0.50 threshold in the communalities extraction, there was no need to go for second trial of analysis since the other two factors are not only among the top rated by respondents (table 7.6), they were strongly loaded under the two extract components as indicated in table 7.26. Therefore a model with "to improve responsiveness and cycle times" and to improve timely delivery of services" is adequate to represent the time related factors.

Table 7.25: Communalities for time related factors (TRF)

	Initiation	Extraction
To improve timely delivery of services	1.000	0.540
No time to acquire tools and technologies in-house	1.000	0.216*
To improve responsiveness and cycle times	1.000	0.615

Extraction method: Principal Component Analysis

Table 7.26: Component matrix for TF

	1	2
To improve timely delivery of services		**0.735**
No time to acquire tools and technologies in-house	0.465	
To improve responsiveness and cycle times	**0.784**	

Extraction method: Principal Component Analysis

7.4.9 Social related factors (SCF)

This group had 5 factors originally. The outcome of PCA shows that the value of Kaiser-Mayer-Olkin measure of sampling adequacy is 0.674 while Chi-square value for Bartlett's test of sphericity is 78.597 and the associated significance is 0.000 meaning that the population correlation matrix is an identity matrix (table 7.27).

Table 7.27: KMO and Bartlett's test result for service to community factors (SCF)

Test		Values
Kaiser-Meyer-Olkin measure of sampling adequacy		0.674
Bartlett's test of sphericity	Approximate Chi-Square	78.597
	df	10
	Sig.	0.000

Table 7.28: Total variance explained for SCF

Component	Initial Eigenvalues			Extraction Sums of Square Loadings			Rotation Sums of Square Loadings		
	Total	% of Var.	Cum. %	Total	% of Variance	Cum. %	Total	% of Var.	Cum. %
1	2.203	44.056	44.056	2.203	44.056	44.056	2.144	42.873	42.873
2	1.236	24.722	68.778	1.236	24.722	44.056	1.295	25.905	68.778
3	0.768	15.354	84.132						
4	0.418	8.370	92.502						
5	0.375	7.498	100.000						

Extraction method: Principal Component Analysis

Table 7.28 shows that two components extracted accounted for 68.8% of the total variance explained while the Eigen values for the two components were greater than 1. The communalities table also indicated factor loadings of values ranging from 0.576 to 0.654 which are all greater than 0.50, thereby affirming their suitability for further analysis.

Table 7.29: Communalities for service to community factors (SCF)

	Initial	Extraction
To improve stakeholders' satisfaction	1.000	0.576
To improve customer relation	1.000	0.654
To improve labour relation	1.000	0.731
To improve CSR of hospital	1.000	0.743
To create jobs for local communities	1.000	0.735

Extraction method: Principal Component Analysis

The rotated component matrix shown in table 7.30 indicates that "to create job for local communities" and "to improve stakeholders' satisfaction" were significantly loaded in component 1 and component 2 respectively. Therefore, a model of the two factors is adequate to represent the group of factors. It is instructive to also observe from table 7.5 that they are rated higher than the three discarded factors in the group by respondents.

Table 7.30: Rotated component matrix for SCF

	1	2
To improve stakeholders' satisfaction		**0.809**
To improve customer relation		0.755
To improve labour relation	0.844	
To improve CSR of hospital	0.841	
To create jobs for local communities	**0.848**	

Extraction method: Principal Component Analysis
Rotation method: Varimax with Kaiser Normalization

Having presented the analysis of results for the outsourcing decision factors, the next subsection discusses the results and its implication for theory and practice.

7.4.10 Discussion

The primary aim of this study is to develop a framework for outsourcing FM services in public hospitals. To achieve this, one of the objectives was to determine key factors that influence the decision to outsource FM services. A taxonomy of thirty-one (31) variables relating to decision motivators were extracted from the literature (Bustinza *et al.,* 2005; Jiang, 2006; Ghodeswar and Vaidyanathan, 2008; Hsiao *et al.* 2010; Kroes and Ghosh, 2010; Assaf *et al*. 2011). Respondents who are top hospital administrators in the sample hospitals were then asked to rate the factors using a scale of 1 = strongly disagree to 7 = strongly agree. Their responses were analysed using descriptive statistics and principal component analysis.

Findings reveal that "to improve performance standard", "to improve quality of services" and to improve timely delivery of services" are the top three rated factors. In general, the findings are consistent with previous studies (Kremic *et al*., 2006; Lau and Zhang, 2006; Assaf *et al*., 2011). The common rhetoric among researchers and practitioners has always been that, by asking service providers to come in and manage non-core functions, there is phenomenal improvement in service-level performance standard, quality of services provided and timely delivery of services. What this implies is that emerging trends in the extant literature point to the fact that buyers and stakeholders alike are now more concerned about service quality than cost in outsourcing decisions (Juga *et al*., 2010, pp.499). This study agrees with this assertion but adds that leveraging on the efficient structure of the service providers will through improvement in service-level performance standard trigger other accruable benefits of outsourcing. For instance, though the finding contradicts that of Quelin and Duhamel (2003) which indicated that the top three factors influencing the decision to outsource are: "to lower operational cost", "to focus on core competencies" and "to gain flexibility", the same set of factors namely "the need for cost reduction", "focusing on core competency", and "to gain flexibility" were rated 5^{th}, 8^{th}, and 17^{th} in this study meaning that they are all significant in influencing the decision to outsource FM services. Besides, the strategic objectives of public hospitals like any public institution are skewed towards providing quality services for the public good rather than for cost considerations. The findings also indicated that "to play along with the trend in privatization", "to limit size of staff", and "to compare performance of in-house staff with that of vendors" were the least significant factors. This could be attributed to some

obvious reasons. First, given the perceived apprehension by staff of public institutions towards outsourcing as a strategy that leads to downsizing of staff, this outcome allays those fears as it is clear that respondents who are top management staff in the hospitals are not outsourcing FM services in order to retrench staff. This is supported by the fact that respondents equally voted privatization as the least significant factor. Privatization is widely known to result to staff retrenchment.

In order to select the factors representing each of the six categories, PCA was conducted on each individual category. *Cost related factors* included 5 factors. However two factors namely "to achieve vendor's cost efficient system" and "to achieve cost reduction with enhanced performance" received the most significant loadings among all the factors in the group. This is clearly consistent with the finding of Ghodeswar and Vaidyanathan (2008) that "an access to a vendor's cost efficient structure is one of the most compelling short term benefits of outsourcing including cost reduction with enhanced performance". To underscore the importance attached to the cost related factors by respondents, table 7.6 indicates that the average mean value of cost factors is 5.93 out of 7 points and had an overall rank of 2nd among the 6 groups. *Strategy related factors* included 10 factors. However, the factors "to improve strategic positioning", "to focus on core competencies", "to share risks", "to compare in-house performance with vendor's staff", and "to handle varying demands more effectively were selected to represent the group based on their loadings. This is highly interesting because with several distractions arising from reported shorted of personnel, poor funding and policy inconsistency, public institutions such as hospitals in Nigeria are now embracing outsourcing for its non-core FM services in order to be strategically positioned to face the obvious daunting challenges and focus on its core mandate of administering core medical services to the people. Besides, the burden of incurring extra expenditures for carrying out required FM services in accordance with laid down standard of performance is reduced by sharing the risk with the FM outsourcing vendors. The average mean for the strategy related factors is 4.23 out of 7 points (table 7.6) while it is ranked 6th. *Innovation factors* included 5 factors. Two factors "to gain access to new products and services" and "to permit quicker response to new needs" were selected to represent the group based on their factor loadings. It is instructive to note that with acknowledged poor funding and dwindling resources currently being faced by the hospitals, a service provider with the requisite skills and experience would give the hospitals series of access to innovative products and services. As noted earlier,

the current economic globalisation and competition as well as growing demand for accountability and improved service have pushed public organisations to devise innovative solutions to complex social problems by acting more like market driven enterprises ((Kakabadse and Kakabadse, 2001). The mean score for innovation related factors was 5.60 and had an overall rank of 3rd among the 6 groups. Two of the three factors included in *quality related factors* were selected to represent the group based on their factor loadings. They are "to improve performance standard" and "to improve quality of services". Outsourcing as a strategy for improving performance and quality standard has been widely reported in several studies (Hendrickson, 1998; Kremic *et al*., 2006). It is not surprising therefore that these two factors were significantly loaded based on the opinion of respondents. This is because there is a growing sense of discontent among top management staff in public hospitals in Nigeria and most developing economies that the continuous use of in-house staff for FM services among other public services has not yielded significant improvement in service-level standard of quality and performance. Quality related factors had an overall mean score of 6.22 out of 7 points and ranked 1st out of the 6 groups which underscores the importance attached to quality by respondents when considering outsourcing for FM services in public hospitals. Two of three factors grouped under *time factors* were selected based on their factor loadings. They include "to improve responsiveness and cycle times" and "to improve timely delivery of services. This is consistent with the findings of Frohlich and Dixon (2001) and Kroes and Ghosh (2010). This study agrees entirely with this finding because there is arguably a genuine desire among Nigeria's public hospitals to leverage on FM service providers who can deliver on schedule and with reduced cycle times and high sense of responsiveness, particularly when viewed from the fact that FM is just at a novelty stage among public organisations in Nigeria. The average mean value for time related factors is 5.15 and ranked 4th among the 6 groups. The need to incorporate CSR into the strategic objectives of government organisations in Nigeria has continued to attract interests among researchers and practitioners (Kadiri, 2006; Adewunmi *et al*., 2012, Ikediashi *et al*. 2012). It is in this regard that two out of the five factors grouped under *social factors* were selected based on their factor loadings. They are "to create jobs for local communities" and "to improve stakeholders' satisfaction". What this implies is that public hospitals consider the need to create jobs for local residents and the need to satisfy the stakeholders when decision on whether to outsource FM services or not.

7.4.11 Summary

To summarize, 25 out of 31 outsourcing decision factors were significant in explaining the decision to outsource FM services in public hospitals. 15 out of the 25 significant factors were however selected based on their factor loadings from PCA and will be used to develop the outsourcing framework.

The next section presents the analysis and discussion of survey conducted on outsourced FM services in public hospitals.

7.5 Empirical survey of outsourced FM services in public hospitals.

7.5.1 Introduction

For decades, healthcare organisations have turned to outsourcing in order to maintain high standard of care for patients and other stakeholders while addressing current economic realities (Sarpin and Weideman, 1999; Moschuris and Kondysis, 2006). As part of efforts to develop an integrated framework for outsourcing FM services in Nigeria's public hospitals, a survey of all FM services was carried out (objective two). This section presents an outcome of the survey. It relied on previous studies (Thompson, 1990; Avis, 1995; Alaofin, 2003; Chitopanich, 2004, Opaluwah, 2005; and IFMA, 2007) to generate a set of 35 constructs of FM services. However, after pilot-testing and validation of survey instrument, a final list of 27 variables was developed and grouped into 4 categories (please appendix for details).

7.5.2 Outsourced FM services

Respondents (who are mainly top management staff responsible for FM portfolio) were asked to indicate which applies to FM services in their respective hospitals using a scale of 1 = not applicable in this hospital, 2 = done by in-house staff, and 3 = outsourced to FM vendors.

Table 7.31: Result of analysis for FM services in surveyed hospitals

FM Services	N/A	In-house	Outsourced	Remark
Real estate management				
Real estate/property mgt	60	14	-	majority not available
Leasing and sub-letting services	67	7	-	majority not available
Retail outlets and space renting	64	10	-	majority not available
Extension and alterations	9	52	13	majority by in-house staff
Demolitions	3	38	33	majority by in-house staff
Maintenance and repairs				
Facility refurbishment	35	39	-	majority by in-house staff
Plant maintenance and repairs	-	-	74	**all outsourced**
General cleaning services	-	-	74	**all outsourced**
Waste disposal & environmental mgt	-	-	74	**all outsourced**
Health and safety management	9	65	-	majority by in-house staff
Landscape maintenance	-	-	74	**all outsourced**
Administration management				
Security	-	-	74	**all outsourced**
Courier services	24	49	1	majority by in-house staff
Storage and distribution	-	74	-	all by in-house staff
Reception and telephone operation	6	68	-	majority by in-house staff
Public relation/liaison services	18	55	1	majority by in-house staff
Travel arrangements	25	44	5	majority by in-house staff
Car park maintenance	5	63	6	majority by in-house staff
Purchasing & contract control	-	74	-	all by in-house staff
Office furniture & stationery	-	32	42	majority outsourced
Human resource management	-	74	-	all by in-house staff
Employee support services				
Child nursery administration	53	21	-	majority not available
Recreations	63	8	3	majority not available
Catering/restroom mgt	-	-	74	**all outsourced**
Residential accommodation	12	61	1	majority by in-house staff
Community affairs	46	28	-	majority not available
Mgt of employees with special needs	67	7	-	majority not available

Table 7.31 shows that 6 FM services namely plant management and repairs; general cleaning services; waste disposal and environmental management; landscape maintenance; security; and catering/restroom management are completely outsourced in all the 74 hospitals. It also indicates that storage and distribution of medical supplies; and human resource management are completely done by the in-house team of the hospitals. Besides, the result also indicates that majority of the FM services under real estate/property management are not available as at the time of this survey; majority of

the services under administration management are done by in-house team; while there is a mixed spread for services under support/administration services.

7.5.3 Discussion

Researchers have expressed the need for health care institutions to go beyond accurate diagnosis and treatment to performance in all services received by users in hospitals (Moschuris and Kondysis, 2006; Elleuch, 2008; Badri *et al*., 2009). Arising from that perspective and as part of effort to develop a framework for outsourcing FM services in Nigeria's public hospitals, an empirical survey of outsourced FM services was carried out in 74 public hospitals. Six FM services including plant management and repairs; general cleaning services; waste disposal and environmental management; landscape maintenance; security; and catering/restroom management are completely outsourced in all the 74 hospitals. Although many other services are reported outsourced in most of the hospitals surveyed, it is however surprising to observe that only 6 out of 27 FM services used for the survey are currently being outsourced across all the hospitals. A possible explanation for this development could be traced to the apparent apprehension towards the concept of outsourcing by public institutions including hospitals in Nigeria. It is not that public institutions in Nigeria do not appreciate the benefits of outsourcing. Rather, the entire public health care system in Nigeria has recently come under political and public pressure to improve the quality of its services to the public and yet control the rapidly increasing operational and managerial cost of care. However, given the novelty of outsourcing in the public domain, there have been cases of rising uncertainty and apprehension about its success and particularly how to proceed with the concept. This has further been aggravated by apparent lack of empirical and published research directed towards outsourcing in healthcare. Although there are many services offered in public hospitals, this research is specifically directed towards FM services, a non-core component of services offered in public hospitals. The result also indicates that storage and distribution of medical supplies; purchasing and contract control, and human resource management are completely done by the in-house team of the hospitals. It is particularly interesting to observe that 65 out of 74 hospitals have health and safety management available in the hospitals. This is because health and safety is acknowledged globally as one way of protecting the health and safety of employees and members of the public who may be affected by activities of an organisation. What is however not clear is why 67 out of the 74 sample hospitals do not have services dedicated to employees with special needs? It is possible that there is

hardly any significant number of employees with special needs in the hospitals giving credence to speculations that most organisations in Nigeria do not give consideration to people with special needs when recruiting. Besides, it is observed from the result that majority of the FM services under real estate management are not available in the hospitals. This is not to indicate that they are not relevant in the hospitals. Rather, most of the services are only seasonal in nature.

7.5.4 Summary

To summarize, 6 out of 27 FM services used for the survey are outsourced in all the hospitals. To ensure homogeneity of data collection and analysis, the 6 services were used for the second strand of questionnaire survey. The next section presents the descriptive statistics for the second strand of questionnaire survey.

7.6 Non-response bias estimation and sample characteristics for second questionnaire survey

The second part of the questionnaire survey, which is a follow up to the first one was conducted in March/April, 2013. The next section (7.6.1) presents the non-bias estimation technique adopted for the study, followed by analysis and discussion of sample characteristics.

7.6.1 Non response bias and response rate estimation

Non-response bias was studied using pair wise one-way ANOVA on 5 demographics of respondents for the first 50 and last 50 responses. The statistical significance of differences was assessed at 5% level of significance. There were no statistical differences between the two groups for any of the five demographic variables. Thus, the sample is assumed to satisfactorily represent the target population.

As noted in chapter 6, sample frame for the second strand of questionnaire survey consisted of major stakeholders (staff and patients) in the sample hospitals. List of all staff was extracted from the hospitals' nominal rolls while 5 patients were purposively selected from each of the 10 hospitals. Because of the large resultant sample size, it was decided to proportionally apply 30% to the sample before 5 patients are added. Data in table 7.32 shows how number of questionnaires subsequently

administered during the survey was arrived at, including the usable responses and the overall response rate.

Table 7.32: Response rate estimation for second questionnaire survey

Hospital	S	30% (S)	AD	RECVD	U/R	R/R(%)
FEDHOSPAKW	286	86	91	41	35	38.5
STAHOSPAKW	218	65	70	19	17	24.3
FEDHOSPDEL	228	68	73	32	28	38.4
STAHOSPDEL	212	64	69	21	15	21.7
FEDHOSPEDO	300	90	95	23	18	18.9
STAHOSPEDO	274	82	87	8	8	9.2
FEDHOSPCRS	279	84	89	32	27	30.3
STAHOSPCRS	226	68	73	20	18	24.7
FEDHOSPRVS	297	89	94	32	30	31.9
STAHOSPRVS	274	82	87	18	12	13.8
Total	**2594**	**778**	**828**	**246**	**208**	**25.1**

Note: S = sample; AD = administered; RECVD = received; U/R = usable response; R/R = response rate

A total of 246 survey responses were received. Of these, 38 were not fully completed and therefore discarded. Specifically, those who left out or ticked "no" to item PC05 in the questionnaire that asked respondents to indicate if they have benefited from outsourced FM services were discarded. This resulted in an overall response rate of 25.1%. This is reasonable considering the fact that all major stakeholders were proportionally captured. It is important to also note the poor response rate from the two hospitals in Edo state. This is because of the relatively long distance between Uyo where the field work was coordinated and Edo state.

7.6.2 Sample characteristics

Table 7.33 shows profile of respondents for the second strand of questionnaire survey. There was a reasonable spread of responses across the major professionals including 19 responses from vendor staff in the sample hospitals although 36% of respondents are not affiliated to any of the major professional bodies. Equally encouraging is the number of patients (31 out of 50) who returned valid responses. The result also indicate diverse set of academic backgrounds among usable responses received as almost 50% had bachelor's degree while 7% had master's degree.

Table 7.33:Profile of sample respondents for second questionnaire survey

Metrics	Frequency	%
Job description		
Doctor	37	17.8
Nurse	45	21.6
Pharmacist	22	10.6
Lab scientist	12	5.8
Physiologist	8	3.8
Radiologist	5	2.4
Administration	29	13.9
Vendor staff (technical)	14	6.7
Vendor staff (administration)	5	2.4
Patient	31	14.9
Total	**208**	**100**
Professional affiliation		
Nigerian medical association (NMA)	37	17.8
National association of Nigerian nurses and midwives (NANNM)	45	21.6
Nigerian society of engineers (NSE)	1	0.5
Nigerian institute of architects (NIA)	-	-
Nigerian institute of estate surveyors and valuers (NIESV)	-	-
Nigerian institute of building (NIOB)	1	0.5
Institute of chartered accountants of Nigeria (ICAN)	14	6.7
Pharmaceutical association of Nigeria (PAN)	22	10.6
Medical laboratory science council of Nigeria (MLSCN)	12	5.8
No affiliation	75	36
Total	**208**	**100**
Academic qualification		
Ordinary national diploma (OND)	12	5.8
Higher national diploma (HND)	19	9.1
Bachelor’s degree	101	48.6
Master’s degree	14	6.7
MBBS	26	12.5
Doctor of philosophy	1	0.5
FMCPH/FWCS	12	5.8
Not applicable	23	11.1
Years of experience		
<5	10	4.8
6-10	72	34.6

11-20	72	34.6
21-30	18	8.7
>30	7	3.4
Not applicable	29	13.9
Total	**208**	**100**

Note: MBBS = Bachelor of Medicine and Bachelor of Surgery; FWCS = Fellow, West African College of Surgeons, FMCPH = Fellow, Medical College of Public Health Physicians

In order to improve data accuracy, it is important to target key informants with knowledge relevant to the issue of interest in a study (Huber and Power, 1985). To underscore the importance of this assertion to this research, many respondents who indicated that they do not have adequate knowledge of outsourcing were dropped from the investigation.

7.7 Assessing user satisfaction of service quality for outsourced FM services

A major outcome of the first strand of questionnaire survey in this study was the selection of 15 outsourcing decision factors and empirical discovery of 6 outsourced FM services in all the 74 hospitals. This section assesses the satisfaction of users with quality of the 6 FM services. Accordingly, section 7.7.1 presents preliminary investigation carried out to ensure that measurement scales and opinion of respondents are deemed reliable; section 7.7.2 presents result of rankings of satisfaction with the service quality of 6 FM services; section 7.7.3 presents analysis of the service quality versus satisfaction SEM model; while section 7.74 focuses on detailed discussion of findings. Finally, concluding summary is presented in section 7.7.5.

7.7.1 Preliminary investigation

As noted earlier, the items and constructs used for this component of the study were developed using the theory building approach based on SERVQUAL and SERFPERF, and refined through inputs from academic and industrial experts.

Reliability coefficients and ANOVA checks were used to assess the internal consistency of service quality scales and difference in perception of respondents based on their groups (such as job description, professional affiliation, academic qualification, years of experience, and location of hospital) respectively. The service quality indicators collectively measure the impact of outsourced plant maintenance services and

their personnel, landscaping maintenance and their personnel, cleaning services and their personnel, security services and their personnel, waste services and their personnel, and catering services and their personnel on user satisfaction. Cronbach's alpha values of 0.824, 0.721, 0.788, 0.841, 0.883, and 0.744 were computed against each of the 6 latent constructs respectively; thus reflecting a high measure of construct reliability (Pallant, 2010).

Table 7.34: ANOVA result for the 27 service quality constructs

Observable variables	Job description		Professional affiliation		Academic qualification		Years of experience		Location of hospital	
	F	p-value	F	p-value	F	p-value	F	p-value	F	p-value
Plant maintenance services										
Attitude and courtesy of personnel	0.398	0.935	0.517	0.843	2.056	0.052	1.402	0.225	0.901	0.464
Reliability (dependable and accurate service)	1.657	0.102	0.428	0.903	2.078	0.059	30342	0.006*	1.465	0.214
Responsiveness (provision of prompt service)	1.087	0.374	0.485	0.866	1.226	0.290	1.612	0.158	0.481	0.749
Competence (possession of requisite skill)	0.839	0.581	0.332	0.953	1.759	0.065	0.327	0.897	0.429	0.788
Landscape maintenance services										
Attitude and courtesy of personnel	0.588	0.806	0.618	0.762	1.417	0.200	0.405	0.845	5.514	0.000*
Reliability (dependable and accurate service)	2.341	0.016	0.949	0.477	1.709	0.109	0.362	0.874	1.490	0.207
Responsiveness (provision of prompt service)	1.433	0.176	1.234	0.281	1.054	0.395	0.154	0.979	2.096	0.083
Competence (possession of requisite skill)	1.551	0.133	1.350	0.221	2.358	0.025*	0.736	0.597	1.884	0.115
Trimming of flowers and trees in premises	0.544	0.841	2.670	0.008*	1.237	0.284	1.346	0.247	1.499	0.204
Cleaning services & their personnel										
Attitude and courtesy of personnel	1.125	0.347	3.324	0.010*	4.552	0.000*	1.056	0.386	1.663	0.160
Reliability (dependable and accurate service)	1.680	0.096	2.283	0.023*	1.327	0.239	0.701	0.624	1.361	0.249
Responsiveness (provision of prompt service)	1.384	0.197	0.780	0.621	3.058	0.004*	0.931	0.462	1.903	0.111
Competence (possession of requisite skill)	0.757	0.656	0.838	0.570	1.200	0.305	0.606	0.696	1.381	0.252
Refuse collection arrangements	0.623	0.777	0.676	0.712	1.591	0.140	2.650	0.024*	2.044	0.091
Security services & their personnel										
Attitude and courtesy of personnel	0.621	0.778	0.794	0.609	1.018	0.420	0.541	0.745	2.172	0.069
Reliability (dependable and accurate service)	0.816	0.602	0.209	0.989	1.594	0.139	1.122	0.350	2.357	0.055
Responsiveness (provision of prompt service)	0.536	0.847	0.774	0.626	1.194	0.308	0.568	0.724	2.233	0.067
Competence (possession of requisite skill)	0.413	0.927	1.884	0.064	0.482	0.847	1.119	0.351	1.750	0.143
Instilling security consciousness	0.499	0.874	0.694	0.697	1.948	0.064	1.270	0.367	2.266	0.068
Waste Mgt services & their personnel										
Attitude and courtesy of personnel	1.924	0.051	2.041	0.053	1.770	0.095	1.725	0.069	1.657	0.161
Reliability (dependable and accurate service)	2.244	0.021*	1.473	0.169	1.953	0.063	1.114	0.357	1.845	0.126
Responsiveness (provision of prompt service)	2.428	0.012*	1.980	0.051	2.899	0.007*	0.325	0.898	1.214	0.306
Competence (possession of requisite skill)	0.672	0.734	0.817	0.589	1.989	0.058	0.458	0.823	3.482	0.009*
Catering services & their personnel										
Attitude and courtesy of personnel	0.639	0.762	1.596	0.128	1.371	0.219	1.403	0.225	1.001	0.628
Reliability (dependable and accurate service)	0.390	0.939	1.473	0.169	1.157	0.329	0.948	0.451	2.123	0.079
Responsiveness (provision of prompt service)	0.462	0.899	1.435	0.184	0.334	0.938	0.828	0.531	0.874	0.481
Competence (possession of requisite skill)	0.740	0.672	0.444	0.893	0.804	0.585	1.475	0.200	0.603	0.661

Note: p is significant at $p > 0.05$; * = $p < 0.0$

Results of ANOVA analysis (listed in table 7.34) show that with the exception of nine instances, there is a general sense of unanimity in the ranking of service quality indicators across the 5 descriptive used for the analysis at 95% confidence level. In particular, there are significance differences ($p < 0.05$) in the opinion of respondents about the attitude and courtesy of landscape maintenance personnel (0.000), cleaning services personnel (0.010), competence of landscape personnel (0.025) and waste management services personnel (0.009). However, the overall result portrays a general agreement.

7.7.2 Ranking of service quality indicators for FM services

In line with the general aim of this study which to is to develop a framework for outsourcing FM services in public hospitals, respondents (staff and patients in the sample hospitals) were asked to rate their perception of quality of the 6 outsourced services using a Likert scale of 1 = very poor to 7 = excellent. The result of analysis shown in table 7.35 presents the mean, standard deviation, skewness and kurtosis of each of the observable variables.

Table 7.35: Descriptive statistics for service quality factors

Service quality indicators	Mean	SD	SKN	KTS	G/mean
Plant maintenance services & their personnel					**5.471**
Attitude and courtesy of personnel	5.462	0.679	-0.418	-0.298	
Reliability (dependable and accurate service)	5.466	0.680	-0.528	0.250	
Responsiveness (provision of prompt service)	5.423	0.795	-0.328	0.021	
Competence (possession of requisite skill)	5.534	0.786	-0.957	1.955	
Landscaping services & their personnel					**5.728**
Attitude and courtesy of personnel	5.813	0.701	-0.998	1.870	
Reliability (dependable and accurate service)	5.789	0.744	-0.133	0.054	
Responsiveness (provision of prompt service)	5.692	0.756	-0.370	0.315	
Competence (possession of requisite skill)	5.591	0.811	-0.874	1.824	
Trimming of flowers and trees in premises	5.755	0.737	-0.599	0.786	
Cleaning services & their personnel					**6.171**
Attitude and courtesy of personnel	6.091	0.634	-0.764	2.840	
Reliability (dependable and accurate service)	6.168	0.739	-0.424	-0.592	
Responsiveness (provision of prompt service)	6.255	0.665	-0.438	-0.311	

Competence (possession of requisite skill)	6.245	0.676	-0.531	0.037	
Refuse collection arrangements	6.096	0.787	-0.593	-0.061	
Security services & their personnel					**6.011**
Attitude and courtesy of personnel	6.125	0.655	-0.342	0.134	
Reliability (dependable and accurate service)	6.168	0.656	-0.397	0.154	
Responsiveness (provision of prompt service)	6.039	0.673	-0.141	-0.458	
Competence (possession of requisite skill)	6.125	0.725	-0.502	0.007	
Instilling security consciousness	6.087	0.730	-0.586	0.397	
Waste Mgt services & their personnel					**5.548**
Attitude and courtesy of personnel	5.644	0.665	-0.543	0.871	
Reliability (dependable and accurate service)	5.582	0.731	-0.137	0.198	
Responsiveness (provision of prompt service)	5.495	0.874	-0.358	-0.064	
Competence (possession of requisite skill)	5.471	0.963	-1.033	2.262	
Catering services & their personnel					**5.595**
Attitude and courtesy of personnel	5.692	0.835	-0.827	1.076	
Reliability (dependable and accurate service)	5.649	0.826	-0.356	0.171	
Responsiveness (provision of prompt service)	5.514	0.786	-0.108	-0.084	
Competence (possession of requisite skill)	5.524	0.828	-0.619	0.560	

Note: SD = standard deviation; SKN = skewness; KTS = kurtosis; G/mean = group mean

The result shows an overwhelming level of satisfaction with all the six services with a mean score range of between 5.423 and 6.255. A close examination of the group mean indicators however indicates that quality of services rendered by cleaning services personnel was rated 1st, closely followed at the 2nd by security services and their personnel. Quality of services by landscape maintenance vendors was rated 3rd. The result also indicates satisfactory values of skewness and kurtosis as only in two instances; attitude and courtesy of cleaning services personnel (2.840), and possession of requisite skill by waste management services vendors (2.262) does there seemed to be significant deviations from 0. According to Chan *et al.* 2001, the observed values of skewness and kurtosis should be tested against null hypothesis of zero because values of skewness and kurtosis are zero when a distribution is normal.

A more rigorous analysis was conducted using structural equation modelling (SEM) to examine the causal relationships between the service quality indicators and overall satisfaction of respondents. A full detailed explanation on how it was carried out is presented in the next session.

7.7.3 Service quality versus overall satisfaction SEM model

The primary aim of this study is to develop a framework for outsourcing FM services for public hospitals. In developing the framework, there is a need to establish a link between quality of services currently outsourced and the perception of users of the facilities. This is to avail hospital management authorities an insight into aggregate opinion of its stakeholders about the quality of outsourced FM services across the hospitals. SEM was therefore adopted to examine the causal relationships between service quality of outsourced FM services (comprising 27 staff and facilities related attributes) and user satisfaction. The hypothesized conceptual model that guided the component of this study is shown in figure 5.2 of chapter 5.

According to Blunch (2008) and Byrne (2010), SEM involves 7 major steps including:

- Statement of research questions;
- Model specification, which involves establishing relationships among latent variables derived from research questions and determining how each can be measured. This can be achieved by the review of existing theory, literature and based on experience of researcher;
- Model identification, which involves establishing whether the model can be estimated. This is done by screening out paths not backed by theory;
- Model reformulation to make it estimable;
- Model estimation and data collection;
- Test of fit, which tests the validity of the model with the sole aim of ascertaining whether the predicted estimates from the model are likely to accurately predict the responses from another sample; and
- Model modification to improve the goodness of fit (GOF) of the final model which may be done by further data collection.

However, these seven steps can be compressed into five processes of (1) model specification (2) model identification (3) model estimating (4) model testing and (5) model modification. Similar steps can be found in Schumacker and Lomax (2004), Zulu (2007) and Byrne (2010).

7.7.3.1 Model specification

The specification of SEM model for this component of the study involving theoretical justification of the relationships in the model was established in section 2.8.4 of chapter 2 and section 5.5 of chapter 5. As noted in those sections, the model is theoretical grounded in SERVQUAL and SERVPERF as well as several other works in the service quality literature.

7.7.3.2 Model identification

In order to prepare for SEM procedure, psychometric measure validation of the scales was carried out and followed the steps found in literature as follows:

i. Reliability analysis using Cronbach's alpha (Pallant, 2010)

ii. Factor structure identification with an exploratory factor analysis (EFA) performed on the 27 independent variables (Oliver, 1980; Verbeke and Bagozzi, 2000; Vinagree and Neves, 2008; Hui and Zheng, 2010). Principal axis factoring was used to confirm or otherwise re-structure the proposed factor structure. This was done using Varimax rotation and deleting items whose factor loadings are below 0.45 since they are likely to be weak indicators capable of interfering with result of analysis (Hair *et al*., 1998).

iii. Internal consistency analysis of the factor structure derived from EFA.

Data from table 7.1 show high internal consistency for all 27 items ($\alpha = 0.809$). Using Varimax rotation, principal axis factoring was performed on the 27 items. Six (6) components that explained 68.3% of total variance were extracted. However, on close examination, 2 items CS10 and SS17 failed to meet the recommended threshold of 0.45 and were subsequently dropped. A second trial performed after deleting the two items equally produced 6 components that explained 66.42% of total variance (table 7.36). Both Kaiser's criterion (Eigen value > 1) and % of total variance explained > 5% (King, 1969) were met confirming validity of EFA procedure.

Table 7.36: Result of the exploratory factor analysis (EFA)

Item	CTS	PMS	WES	SS	LMS	CS
PMS02		0.632				
PMS01		0.593				
PMS04		0.567				
PMS03		0.550				

LMS07					0.778	
LMS09					0.581	
LMS06					0.529	
LMS08					0.507	
LMS05					0.499	
CS11						0.693
CS14						0.603
CS12						0.591
CS13						0.524
SS15				0.698		
SS18				0.677		
SS16				0.597		
SS19				0.590		
WES22			0.576			
WES21			0.540			
WES20			0.501			
WES23			0.488			
CTS24	0.699					
CTS25	0.698					
CTS26	0.561					
CTS27	0.543					
Eigen value	**2.90**	**2.18**	**1.92**	**1.70**	**1.51**	**1.35**
% variance	**16.61**	**13.70**	**11.09**	**10.27**	**8.71**	**6.04**
Cummu. %	**16.61**	**30.31**	**41.40**	**50.67**	**60.38**	**66.42**
α	**0.92**	**0.96**	**0.84**	**0.91**	**0.88**	**0.86**

Convergent validity relates to the extent to which scale items in a research are assumed to represent a construct converge on the same construct (Peter *et al*., 1993). In other words, it is the degree to which multiple attempts to measure the same concepts agree. In this research, convergent validity is established by running a Cronbach's reliability test (Field, 2005). Table 7.36 indicates that Cronbach's alpha values (internal consistency analysis of the factor structure derived from EFA) for the 6 extracted components were all above the recommended threshold of 0.7, which shows that the measurement model has good measure of internal consistency and accordingly deemed satisfactory.

7.7.3.3 Model estimation and modification

Model estimating is commonly achieved in research using weighted least squares (WLS), generalised least square (GLS), asymptomatic distribution free (ADF), and maximum likelihood estimating (MLE) (Hair *et al*. 1998; Hair *et al*. 2010; Byrne, 2010). However, MLE was adopted for this study based on the assertion of Levin *et al*. (2005) and Byrne (2010) that it is the most efficient and widely used technique on account of its ability to adopt to difficult situations including distributions with low sample size while AMOS version 18 software was used to analyse the model estimates.

Confirmatory factor analysis (CFA) was used to establish confidence and strength in the measurement model before running the SEM model. This is consistent with the two-stage process suggested by Schumacker and Lomax (2004) and provides opportunity to check the validity of the measurement model even when it is based on sound theory and modify if and when necessary. According to Chinda and Mohamed (2008), CFA allows for assessment of fit between observed and a *priori* conceptualized, theoretically grounded model that specifies the causal relationships between the latent factors and their observed variables. For the purpose of testing the strength of the measurement model in this study, CFA was established using recommended levels of parameter estimates, and goodness of fit (GOF) measures also known as model as a whole (Byrne, 2010).

Parameter estimates were assessed based on feasibility of estimates, appropriateness of standard error and statistical significance of parameter estimates. According to Byrne (2010), the feasibility of estimates is established by the sign and size of the estimates as well as consistency with underlying theory. As such, all estimates outside the expected boundary (which include those whose correlations are > 1, negative variances and correlations that are not positive definite) indicate a wrong model or one in which the input matrix lacks sufficient information. A close examination of the AMOS output matrix (appendix H and I) indicates a general acceptability of the measurement model as all estimates fall within the recommended values. Standard error (S.E) demonstrates the precision with which a parameter has been estimated. A poor model is said to occur when S.Es are excessively large or small. Data in appendix H indicates a satisfactory model fit as all output values are within acceptable limits. On the other hand, statistical significance of parameter estimates is assessed by the critical ratio (C.R) and based on probability level of 0.05, the z-statistic should be > + or – 1.96 before the proposed hypothesis can be accepted. An examination of the AMOS output in appendix I shows that almost all the estimates are significant at $p > 0.05$. For instance, factor loadings under regression weights were all significant; while majority of the estimates under covariance and variance were significant at $p > 0.05$ ($z > +$ or $- 1.96$) as only in 3 instances were significance of estimates marginally violated. However, they are considered theoretically adequate to be included in the model.

Overall fitness of measurement models to data is generally assessed using goodness of fit (GOF) indices. Although there is no agreed single GOF index to judge

the fit of a model, Hair *et al*. (2010) however categorised GOF indices into three main groups. *Absolute fit measures* include chi square statistic (x^2), goodness of fit index (GFI), root mean square residual index (RMR), and root mean square error of approximation (RMSEA). They are commonly preferred when assessing the overall fit of both measurement and structural models together but for which there is no room for modifying the degree of over fitting that may occur. *Incremental or baseline fit measures* include Tucker-Lewis index (TLI), also referred to as non-normed fit index (NNFI), normed fit index (NFI), comparative fit index (CFI), and adjusted goodness of fit index (AGFI). This group of fit indices compare the default model (i.e. proposed model) with an independent model (control model) in order to determine the appropriate degree of improvement over the independent model. *Parsimony-Adjusted measures* address the issue of parsimony in SEM by providing a comparison between models so as to determine the amount of fit achieved by each estimated coefficient (Zulu, 2007). Measures in this category are parsimonious goodness of fit index (PGFI) and parsimonious normed fit index (PNFI). This study agrees with the suggestion of researchers such as Schumacher and Lomax (2004), Zulu (2007), Hair *et al*. (2010) and Byrne (2010) to use wide range of indices for assessing overall fit of measurement models. This is because it enables a researcher to generate a better consensus that would strengthen the validity of a model. On that basis, table 7.37 shows 9 model fit indices used for analysis, recommended values, their sources, and the generated output statistics from AMOS.

Table 7.37: Result of GOF measures for measurement model

Goodness of fit (GOF) measure	Recommended	Source(s)	1st trial	2nd trial
X^2/degree of freedom	< 2	Byrne, 2001	1.15	1.10
P	> 0.05	Byrne, 2010	0.05	.15
GFI	0 – 1	Bagozzi and Yi, 2012	0.90	.91
RMSEA	≤ 0.10	T & F, 2007	0.03	.02
CFI	> 0.9	Kline, 2005	0.92	.95
TLI	≥ 0.90	Bagozzi and Yi, 2012	0.91	.94
NFI	0 – 1	Doloi *et al.*, 2011	0.62	.65
IFI	0 – 1	Molenaar *et al*., 2000	0.93	.95
RMR	< 0.06	Hair *et al.* 1998	0.04	.04

Note: T & F = Tabachnick and Fidell

An examination of the fit indices for first trial shows that the model fits the data considerably well. However, the value of p = 0.05 indicates that the model would need

to be modified since a well fitted model should possess a p-value > 0.05 (Byrne, 2010; Hair *et al*. 2010). One way of doing this is to remove observable variables shown in the modification indices (M.I) as having multi-collinearity (Chinda and Mohamed, 2008). Therefore LMS05 with the highest was removed leading to final best fit (second trial) GOF indices shown in table 7.37.

7.7.3.4 Structural model

Based on the outcome of exploratory factor analysis and the confirmatory factor analysis, the hypothesized model was re-arranged to conform to the outcome of the two analyses. Having established reliability and confidence in the measurement model, a service quality satisfaction model (SQSM) was developed and tested to examine the direction of assumed relationship between seven latent variables (6 endogenous variables and 1 exogenous variable) depicting the postulated hypotheses under analysis. Figure 7.1 presents the estimated model with the respective path coefficients. The final structural model exhibited good model fit indicators (X^2 = 259, df = 230, p = 0.149, GFI = 0.92, RMSEA = 0.03, CFI = 0.94, TLI = 0.94, NFI = 0.68, IFI = 0.95, and RMR = 0.03). Results show that the estimated structural model corroborated the 6 hypotheses as service quality constructs explained 64% of satisfaction variance (R^2 = 0.64). Besides, with the exception of plant maintenance and their personnel, the service quality indicators for all the other FM services showed strong positive relationships with satisfaction.

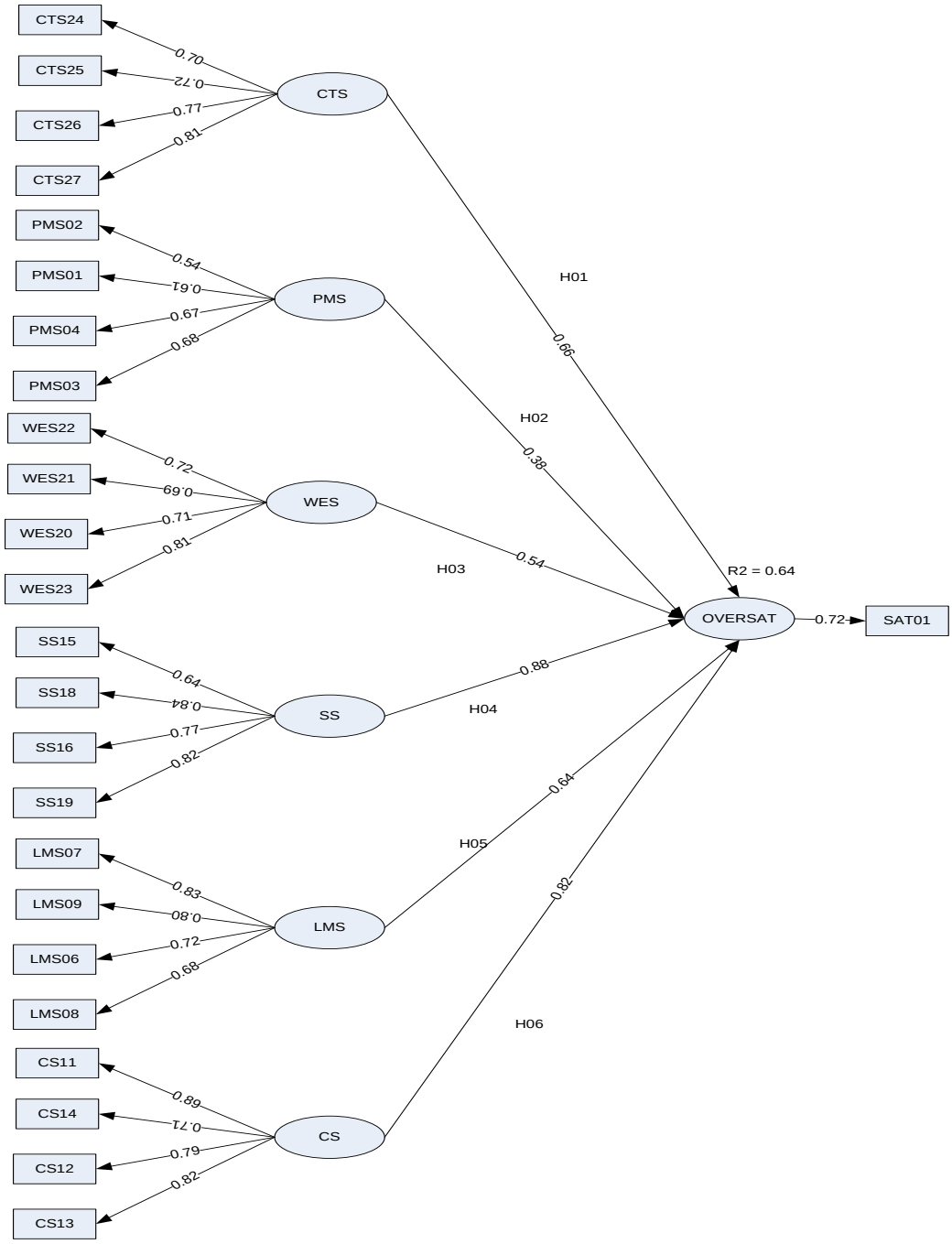

Figure 7.1: Final SQSM structural equation model

It is important to note that all path loadings of the measured attributes showed significant loadings on their respective latent variables indicating a satisfactory level of individual variable reliability in the structural model.

Table 7.38:Standardized path coefficient estimates of the final structural equation model

Hypothesized path	Path coefficient	S.E	p-value	Remark
OVERSAT <--- CTS	0.66	0.022	0.092	Supported
OVERSAT <--- PMS	0.38	0.118	0.066	Supported
OVERSAT <--- WES	0.54	0.072	0.078	Supported
OVERSAT <--- SS	0.88	0.065	0.067	Supported
OVERSAT <--- LMS	0.64	0.054	0.061	Supported
OVERSAT <--- CS	0.82	0.076	0.075	Supported

Note: OVERSAT = overall satisfaction; S.E = standard error

A summary of the standardized path coefficients, standard errors, and direction of the hypothesized paths is shown in table 7.38. The significance of the path coefficients has been analysed using one-tailed significance ($p > 0.05$). It shows that all the hypothesized paths were supported by the result and significant at 5% significance level while the highest path loading was scored by hypothesis 5 which is "quality of outsourced security services is positively related to overall satisfaction.

7.7.4 Discussion of results

The section of the study examined how quality of outsourced FM services has impacted on overall satisfaction of users. Specifically, it is aimed at garnering enough evidence in the form of feedback from users to justify the decision to outsourced FM services in the public hospitals. Section 7.7.2 analysed the impact using mean values, standard deviation as well as skewness and kurtosis. Table 7.34 shows that all the service quality attributes of outsourced FM services scored high mean values indicating that users are quite satisfied with the quality of FM services currently outsourced in the surveyed hospitals. However, in order to examine how these key constructs of service quality interact with overall satisfaction, a more rigorous service quality versus satisfaction model (SQSM) was developed and tested using the same set of data. Findings confirm the existence of positive relationships between quality of 5 outsourced FM services and overall satisfaction. This is consistent with findings from previous studies such as Vinagree and Neves (2008); Badri *et al*. (2009); and Hui and Zheng (2010). From a theoretical standpoint, this finding however makes important contribution to service quality literature which is unique from previous studies. For instance, while previous studies such as Vinagree and Neves (2008) and Badri *et al*.

(2009) focused on impact of service quality on patients' satisfaction, this study captured the perception and interest of other general stakeholders such as staff and visitors. Besides, while the importance of medical and diagnostic services offered in hospitals cannot be questioned, it is equally more important to stress the vital and complimentary role non-core FM services play in making resource management sustainable in our hospitals. In that circumstance and to the best of our knowledge, this is the only study that investigated the impact of service quality of FM services on overall satisfaction using structural equation modelling thereby contributing to outsourcing literature. The findings also have profound practical implications. The result shows that outsourced security services, cleaning services, and catering services are the top three rated services in terms of quality of service delivery. It is also established as a result of this research that security and cleaning services exhibited strong positive relationship with overall satisfaction. It means that the decision to outsource these services has been well received by users as they are reasonably satisfied with the quality of services rendered by vendors. However, plant maintenance services (PMS) and waste and environmental services (WES) did not possess strong relationship with overall satisfaction.

7.7.5 Summary

To summarize, service quality in relation to catering, plant maintenance, waste management, security, landscape maintenance, and cleaning services received very high satisfaction ratings from respondents. The three top services are cleaning (6.17), security (6.01), and landscape maintenance (5.73).

Furthermore, all six hypotheses were supported by the SQSM structural equation model, indicating that quality attribute depicted by the outsourced FM services is antecedent to overall satisfaction. Specifically, "security services to overall satisfaction" received the highest path loading of 0.88, and was closely followed by "cleaning services to overall satisfaction" with a loading of 0.82. "Plant maintenance services to overall satisfaction" was however supported even though it had a very low path coefficient of 0.38.

The next session presents analysis and discussion of results assessing the criticality of risks associated with outsourcing of FM services in public hospitals.

7.8 Assessing critical risks associated with outsourcing of FM services in public hospitals

It has been widely acknowledged in the literature that outsourcing transactions just like any other human activity is fraught with uncertainties and therefore risk prone. As part of the overall aim of this study which is to develop a best practice framework for outsourcing facilities management services, this section assesses the criticality of a taxonomy of risk factors extracted from literature. Accordingly, section 7.8.1 focuses on ranking of probability of occurrence; section 7.8.2 focuses on severity of risk impact; section 7.8.3 focuses on assessing the criticality of identified risk factors; section 7.8.4 presents the outcome of principal component analysis conducted to select the most representative of the risk factors; section 7.8.5 focuses on discussion of findings; while section 7.8.6 presents the concluding remarks.

7.8.1 Assessing the probability of occurrence of identified outsourcing risk factors

In order to assess the likelihood of occurrence of the risk factors, data was generated from 208 stakeholders in the sample hospitals and analysed using PASW version of SPSS software. The mean ratings as provided by respondents, the rankings, and the Kruskal Wallis one-way ANOVA test result for K independent samples are shown in table 7.39.

Table 7.39:Assessing probability of occurrence of outsourcing risks factors

Risk factors	MR_{prob}	Rank	Chi-square	KW	RMK
Client factors (CF)					
Conflict of interest	3.702	11	11.123	0.267	p> 0.05
Inadequate planning of outsourcing policies	3.779	9	5.332	0.804	p > 0.05
Possible loss of control by clients	3.135	19	7.894	0.545	p > 0.05
Excessive monitoring of performance	2.885	24	5.244	0.813	p > 0.05
Loss of core knowledge by client	2.942	23	3.626	0.934	p > 0.05
Fall in morale of employees	3.918	4	7.951	0.539	p > 0.05
Loss of internal coherence	2.755	25	8.294	0.505	p > 0.05
Selective discrimination of vendors	2.318	31	10.238	0.332	p > 0.05
Loss of organisational competence	2.500	29	4.284	0.892	p > 0.05
Possibility of weak management	2.534	27	3.620	0.935	p > 0.05
High management overheads	2.510	28	9.994	0.351	p > 0.05
Outsourcing contract factors (OC)					

Inadequacy of standard form of contract	3.572	12	6.429	0.696	p > 0.05
Inadequate definition of scope and content	3.803	8	12.481	0.188	p > 0.05
Poor system for rewarding performance	3.486	16	8.691	0.466	p > 0.05
Absence of benchmark for quality	3.759	10	9.874	0.361	p > 0.05
Confidentiality leaks	3.207	18	3.593	0.936	p > 0.05
Unfavourable contract terms	3.274	17	10.301	0.327	p > 0.05
Lack of trust	3.822	7	5.801	0.760	p > 0.05
Business uncertainties	2.563	26	6.249	0.715	p > 0.05
Vendor factors (VF)					
Vendor locked up in long term agreement	3.509	14	12.895	0.167	p > 0.05
Vendor opportunism	3.938	3	16.501	0.057	p > 0.05
Financial failure of vendor	3.986	2	14.965	0.092	p > 0.05
Poor quality of vendor services	3.889	6	9.964	0.353	p > 0.05
Improper invoicing	3.039	22	4.913	0.842	p > 0.05
Inadequate staffing by vendor	2.457	30	7.619	0.573	p > 0.05
Possibility of fraud by vendor	3.894	5	7.603	0.575	p > 0.05
Inexperience and lack of requisite skills	4.048	1	5.226	0.814	p > 0.05
Political factors (PF)					
Loss of intellectual rights	2.034	32	3.739	0.928	p > 0.05
Political instability	1.923	33	12.438	0.198	p > 0.05
Confiscation of vendor properties	1.875	34	8.061	0.528	p > 0.05
General factors (GF)					
Interruption to supply of services	3.423	15	13.177	0.155	p > 0.05
Natural disasters	1.534	35	14.361	0.110	p > 0.05
Cultural rejection	3.087	21	12.999	0.163	p > 0.05
Security concerns	3.572	12	12.915	0.166	p > 0.05
Legal logjam	3.135	19	5.343	0.803	p > 0.05

Note: MR_{prob} = mean rating for probability of occurrence ; KW = Kruskal Wallis p-value; RMK = remark

Data from table 7.39 above indicates that "inexperience and lack of requisite skills by vendors" with a mean rating of 4.048, "financial failure of vendor" with a mean rating of 3.986, "vendor opportunism" with a mean rating of 3.938, "fall in morale of client employees" with a mean rating of 3.918, and "possibility of fraud by vendor" with a mean rating of 3.894 were the five top rated risks likely to occur in the outsourcing of FM services. Also, "natural disasters" with a mean rating of 1.534, "confiscation of vendor properties" with a mean rating of 1.875, "political instability" with a mean rating of 1.923, "loss of intellectual property rights" with a mean rating of 2.034, and "selective discrimination of vendors" with a mean rating of 2.318 were the five least rated risks likely to occur. A close examination of the results also indicates that 22 out of the 35 factors had mean ratings above the average benchmark of 3 for a 5 point Likert scale. It is important to also observe that all risk factors under political risk

(PL) scored below the 3 point benchmark while the 6 top rated factors in terms of probability of occurrence (with the exception of "fall in morale of employees" ranked 4th) are in the vendor risk (VF) category. Table 7.39 also indicate that there is no significance difference of opinion in the rankings at 5% level of significance as $p > 0.05$ in all cases.

7.8.2 Assessing the severity of impact of identified outsourcing risk factors

Severity of impact of each of the 35 outsourcing factors was assessed using the scale adopted by Wiguna and Scott (2006) and Mbachu (2011). In it, respondents were asked to rate their assessment of the impact of identified risks to outsourcing of FM services in the hospitals using a 5 point Likert scale of 1 = very low, 2 = low, 3 = moderate, 4 = high and 5 = very high. The result indicating the mean of impact ratings, their relative ranks, and the Kruskal Wallis chi square test is shown in table 7.40.

Table 7.40: Assessing severity of impact of outsourcing risks factors

Risk factors	MR_{impact}	Rank	Chi-square	KW	RMK
Client factors (CF)					
Conflict of interest	4.063	3	11.117	0.268	p>0.05
Inadequate planning of outsourcing policies	3.971	4	9.690	0.376	p>0.05
Possible loss of control by clients	3.750	14	18.021	0.035*	p<0.05
Excessive monitoring of performance	3.625	18	15.039	0.090	p>0.05
Loss of core knowledge by client	3.731	16	8.235	0.511	p>0.05
Fall in morale of employees	3.923	5	12.945	0.165	p>0.05
Loss of internal coherence	3.462	23	9.214	0.418	p>0.05
Selective discrimination of vendors	2.664	34	6.481	0.691	p>0.05
Loss of organisational competence	3.534	25	3.679	0.931	p>0.05
Possibility of weak management	3.543	24	6.977	0.640	p>0.05
High management overheads	3.418	26	13.706	0.133	p>0.05
Outsourcing contract factors (OC)					
Inadequacy of standard form of contract	3.851	8	7.645	0.570	p>0.05
Inadequate definition of scope and content	3.923	5	13.127	0.157	p>0.05
Poor system for rewarding performance	3.173	28	4.023	0.910	p>0.05
Absence of benchmark for quality	3.832	9	9.847	0.363	p>0.05
Confidentiality leaks	3.629	17	3.823	0.923	p>0.05
Unfavourable contract terms	3.567	21	8.313	0.503	p>0.05
Lack of trust	3.827	10	7.973	0.537	p>0.05
Business uncertainties	3.111	29	8.737	0.462	p>0.05
Vendor factors (VF)					
Vendor locked up in long term agreement	3.601	19	4.302	0.890	p>0.05

Vendor opportunism	3.817	11	6.780	0.660	p>0.05
Financial failure of vendor	3.879	7	6.457	0.693	p>0.05
Poor quality of vendor services	3.759	15	5.636	0.776	p>0.05
Improper invoicing	2.885	32	13.258	0.151	p>0.05
Inadequate staffing by vendor	2.385	35	11.362	0.252	p>0.05
Possibility of fraud by vendor	4.197	2	9.893	0.359	p>0.05
Inexperience and lack of requisite skills	4.221	1	5.403	0.798	p>0.05
Political factors (PF)					
Loss of intellectual rights	2.923	31	8.406	0.494	p>0.05
Political instability	2.971	30	10.083	0.344	p>0.05
Confiscation of vendor properties	2.688	33	7.071	0.630	p>0.05
General factors (GF)					
Interruption to supply of services	3.740	15	17.167	0.046*	P<0.05
Natural disasters	3.250	22	17.301	0.044*	P<0.05
Cultural rejection	3.582	20	12.573	0.183	p>0.05
Security concerns	3.798	12	4.571	0.870	p>0.05
Legal logjam	3.245	27	6.592	0.679	p>0.05

Note: MR_{impact} = mean rating for severity of impact; * = $p < 0.05$

It is obvious from the result that "inexperience and lack of requisite skills by vendors" with a mean of impact rating of 4.221, "possibility of fraud by vendor" with a mean of impact rating of 4.197, "conflict of interest" with a mean of impact rating of 4.063, "inadequate planning of outsourcing policies" with a mean of impact rating of 3.971, and "fall in morale of client employees" with a mean of impact rating of 3.923 were the top five rated risk factors. Besides, "inadequate staff by vendor" with a mean of impact rating of 2.385, "selective discrimination of vendors" with a mean of impact rating of 2.664, "confiscation of vendor properties" with a mean of impact of 2.688, "improper invoicing" with a mean of impact rating of 2.885, "loss of intellectual rights" with a mean of impact rating of 2.923 and "political instability" with a mean of impact rating of 2.971 were the five least rated factors. A close scrutiny of the results indicates that 29 factors in 4 of the 5 categories had mean ratings above 3 point benchmark. Result also shows that there is significant difference of opinion in 3 of the 35 factors while the Kruskal Wallis test result show that there is no dissenting of opinion in 32 of the factors. Similar to previous result in section 7.8.1, all risk factors under political factors (PF) did not meet the 3 point threshold.

7.8.3 Assessing the criticality of identified outsourcing risk factors

Having assessed the probability of occurrence and potential impact the risks would have on outsourcing of FM services, the risk score index and criticality index were computed using equations 1 and 2 which provide expressions adapted from the risk analysis procedure recommended in the project management book of knowledge PMBOK (Project Management Institute, 2008):

$Rs_i = MR_{prob} * MR_{impact}$ (1)

$CI = Rs_i/25$ (2)

Where:

Rs_i is the risk score index for the i^{th} risk factor
MR_{prob} is mean rating for probability of occurrence
MR_{impact} is the mean rating for potential level of impact

In order to segregate the outsourcing risk factors based on the probability-impact score, the impact-frequency (I-F) chart devised by Mbachu (2011) was used to make a decision on critical, somehow critical and not critical factors.

Table 7.41:Assessing criticality of risk factors

Risk factors	MR_{prob}	Rank	MR_{impact}	Rank	Rs_i	Rank	CI	RMK
Client factors (CF)								
Conflict of interest	3.702	11	4.063	3	15.041	6	0.601	CRT
Inadequate planning of outsourcing policies	3.779	9	3.971	4	15.006	7	0.600	CRT
Possible loss of control by clients	3.135	19	3.750	14	11.756	16	0.470	CRT
Excessive monitoring of performance	2.885	24	3.625	18	10.758	22	0.418	CRT
Loss of core knowledge by client	2.942	23	3.731	16	10.976	21	0.439	CRT
Fall in morale of employees	3.918	4	3.923	5	15.370	5	0.615	CRT
Loss of internal coherence	2.755	25	3.462	23	9.538	24	0.382	CRT
Selective discrimination of vendors	2.318	31	2.664	34	6.175	30	0.247	CRT
Loss of organisational competence	2.500	29	3.534	25	8.835	26	0.353	S/CRT
Possibility of weak management	2.534	27	3.543	24	8.978	25	0.359	S/CRT
High management overheads	2.510	28	3.418	26	8.579	29	0.343	S/CTR
Outsourcing contract factors (OC)								
Inadequacy of standard form of contract	3.572	12	3.851	8	13.756	12	0.550	CRT
Inadeq. definition of scope and content	3.803	8	3.923	5	14.919	8	0.597	CRT
Poor system for rewarding performance	3.486	16	3.173	28	11.061	20	0.442	CRT
Absence of benchmark for quality	3.759	10	3.832	9	14.404	11	0.576	CRT
Confidentiality leaks	3.207	18	3.629	17	11.638	19	0.465	CRT

Unfavourable contract terms	3.274	17	3.567	21	11.678	18	0.466	CRT
Lack of trust	3.822	7	3.827	10	14.627	9	0.585	CRT
Business uncertainties	2.563	26	3.111	29	7.973	28	0.319	S/CRT
Vendor factors (VF)								
Vendor locked in long term agreement	3.509	14	3.601	19	12.636	15	0.505	CRT
Vendor opportunism	3.938	3	3.817	11	15.165	4	0.607	CRT
Financial failure of vendor	3.986	2	3.879	7	15.462	3	0.618	CRT
Poor quality of vendor services	3.889	6	3.759	15	14.619	10	0.585	CRT
Improper invoicing	3.039	22	2.885	32	8.768	27	0.351	S/CRT
Inadequate staffing by vendor	2.457	30	2.385	35	5.600	33	0.224	N/CRT
Possibility of fraud by vendor	3.894	5	4.197	2	16.343	2	0.654	CRT
Inexperience and lack of requisite skills	4.048	1	4.221	1	17.087	1	0.683	CRT
Political factors (PF)								
Loss of intellectual rights	2.034	32	2.923	31	5.942	31	0.238	N/CRT
Political instability	1.923	33	2.971	30	5.713	32	0.229	N/CRT
Confiscation of vendor properties	1.875	34	2.688	33	5.040	34	0.202	N/CRT
General factors (GF)								
Interruption to supply of services	3.423	15	3.740	15	12.802	14	0.512	CRT
Natural disasters	1.534	35	3.250	22	4.986	35	0.199	N/CRT
Cultural rejection	3.087	21	3.582	20	11.058	20	0.442	CRT
Security concerns	3.572	12	3.798	12	13.566	13	0.543	CRT
Legal logjam	3.135	19	3.245	27	10.173	23	0.406	CRT

Note: (risk score) Rs_i = MRprob * MRimpact; CI = criticality index = Rs_i /25; CRT = critical; N/CRT = not critical; S/CRT = somehow critical

Data in table 7.41 established 24 out of the 35 risk factors as critical, 4 factors as somehow critical, and 5 factors as not critical. It is equally observed that "inexperience and lack of requisite skills by vendors", "possibility of fraud by vendor", "financial failure of vendor", "vendor opportunism" and "fall in morale of client employees" were the 5 top critical risk factors while "natural disasters", "confiscation of vendor properties", "inadequate staff by vendor", "political instability", and "loss of intellectual rights" were the five least critical risks likely according to respondents' rating.

7.8.4 Principal component analysis (PCA) of outsourcing risk factors

As noted earlier, the essence of PCA in this research is not to uncover hidden relationships in the original sets of data but to select the most representative factors in each of the five categories of outsourcing risk factors. From the previous section (section 7.8.3), the 35 risk factors collated from the relevant literature domains were found to be critical, somehow critical or not critical using the Impact-Frequency (I-F)

chart for mapping and prioritizing risk factors devised by Mbachu (2011) and adopted from project management book of knowledge (PMBOK). However, the intention of this research is not to solely classify the outsourcing risks into critical, somehow critical or not critical, but to identify key risks that significantly load on each of the 5 risk categories. To do this, there are two choices of data set for analysis, namely that from probability of occurrence and severity of risk. This study used data set for probability of occurrence for PCA because it is argued that if a risk does not occur, it cannot be critical. People are able to access how probable and frequent a risk is before the severity. The next 5 sections therefore explain how significant risk factors loaded in each of the 5 risk categories were arrived at.

7.8.4.1 Client related factors (CR)

This group originally had 11 factors. Though the first trial of PCA gave a satisfactory Kaiser-Mayer-Olkin measure of sampling adequacy and Bartlett's test of sphericity values (KMO = 0.648, Chi square = 541.178, df = 55 and significance = 0.000), the result of communalities extraction shows that "loss of internal coherence" had a loading of 0.382 which is less than the recommended threshold of 0.6. It was therefore discarded and a second trial conducted. The result shown in table 7.42 indicates that Kaiser-Mayer-Olkin measure of sampling adequacy is 0.628 > 0.500 while Bartlett's test of sphericity chi-square of 482.039 gave an identity matrix at significance of 0.000 and degree of freedom of 45. The data set is therefore suitable for further analysis.

Table 7.42: KMO and Bartlett's test result for client related factors (CR)

Test		Values
Kaiser-Meyer-Olkin measure of sampling adequacy		.628
Bartlett's test of sphericity	Approximate Chi-Square	482.039
	df	45
	Sig.	.000

According to table 7.43 four components with Eigen values > 1 were extracted while they explained 64.95% of total variance explained. Besides, table 7.44 shows a satisfactory range of communalities as all the 10 factors had loadings of between 0.586 and 0.776.

Table 7.43: Total variance explained for CR

	Initial Eigenvalues			Extraction Sums of Square Loadings			Rotation Sums of Square Loadings		
Component	**Total**	**% of Var.**	**Cum. %**	**Total**	**% of Variance**	**Cum. %**	**Total**	**% of Var.**	**Cum. %**
1	2.541	25.405	25.405	2.541	25.405	25.405	2.481	24.814	24.814
2	1.739	17.386	42.791	1.739	17.386	42.791	1.732	17.317	42.132
3	1.450	14.498	57.289	1.450	14.498	57.289	1.482	14.817	56.948
4	1.237	12.371	69.661	1.237	12.371	69.661	1.271	12.712	69.661

Extraction method: Principal Component Analysis

Table 7.44: Communalities for client related factors (CR)

	Initial	**Extraction**
Conflict of interest	1.000	0.680
Inadequate planning of outsourcing policies	1.000	0.755
Possible loss of control by clients	1.000	0.625
Excessive monitoring of performance	1.000	0.695
Loss of core knowledge by client	1.000	0.586
Fall in morale of employees	1.000	0.731
Selective discrimination of vendors	1.000	0.672
Loss of organisational competence	1.000	0.766
Possibility of weak management	1.000	0.776
High management overheads	1.000	0.680

Extraction method: Principal Component Analysis

Table 7.45 indicates that 4 factors namely; “loss of organisational competence” (0.870), “inadequate planning of outsourcing policies” (0.864), “excessive monitoring of performance” (0.825) and “fall in morale of client employees” (0.803) were significantly loaded in the 4 components. Thus, a model of the four factors is adequate to represent the group.

Table 7.45: Rotated component matrix for CR

	1	**2**	**3**	**4**
Loss of organisational competence	**0.870**			
Possibility of weak management	0.866			
High management overheads	0.771			
Inadequate planning of outsourcing policies		**0.864**		
Conflict of interest		0.786		
Possible loss of control by clients		0.510	0.419	0.435
Excessive monitoring of performance			**0.825**	

Loss of core knowledge by client	0.730	
Fall in morale of employees		**0.803**
Selective discrimination of vendors		-0.565

Extraction method: Principal Component Analysis
Rotation method: Varimax with Kaiser Normalization

7.8.4.2 Outsourcing contract related factors (OC)

This group originally comprised 8 outsourcing risk factors. Two PCA trials were conducted to make the data set suitable for analysis. It lead to the deletion of two factors namely high level of business uncertainty (0.277) and lack of trust (0.397) on account of very low communalities. The final trial gave Kaiser-Mayer-Olkin measure of sampling adequacy and Bartlett's test of sphericity values as KMO = 0.626, Chi square = 223.605, df = 15 and significance = 0.000 (table 7.46) indicating a satisfactory result.

Table 7.46: KMO and Bartlett's test result for outsourcing contract related factors

Test		Values
Kaiser-Meyer-Olkin measure of sampling adequacy		.626
Bartlett's test of sphericity	Approximate Chi-Square	223.605
	df	15
	Sig.	.000

Table 7.47 indicate that 2 components with Eigen values > 1 which explained 64.95% of total variance explained were subsequently extracted, while table 7.48 also indicates that all factors in the group had favourable communalities that ranged from 0.557 to 0.742.

Table 7.47: Total variance explained for outsourcing contract factors

	Initial Eigenvalues			Extraction Sums of Square Loadings			Rotation Sums of Square Loadings		
Component	**Total**	**% of Var.**	**Cum. %**	**Total**	**% of Variance**	**Cum. %**	**Total**	**% of Var.**	**Cum. %**
1	2.187	39.455	39.455	2.187	39.455	39.455	2.136	38.598	38.598
2	1.410	25.497	64.952	1.410	25.497	64.952	1.461	26.354	64.952

Extraction method: Principal Component Analysis

Table 7.48:Communalities for outsourcing contract related factors (OC)

	Initial	Extraction
Inadequacy of standard form of contract	1.000	0.611
Inadequate definition of scope and content	1.000	0.728
Poor system for rewarding performance	1.000	0.557
Absence of benchmark for quality	1.000	0.559
Confidentiality leaks	1.000	0.742
Unfavourable contract terms	1.000	0.600

Extraction method: Principal Component Analysis

Table 7.49 Two factors namely "inadequate definition of scope of content of contract" (0.851) and "confidentiality leaks" (0.855) had significant loadings on the two components extracted, and therefore adequate to represent the group of risk factors.

Table 7.49: Rotated component matrix for OC

	1	2
Inadequate definition of scope and content	**0.851**	
Inadequacy of standard form of contract	0.765	
Poor system for rewarding performance	0.646	
Absence of benchmark for quality	0.630	
Confidentiality leaks		**0.855**
Unfavourable contract terms		0.775

Extraction method: Principal Component Analysis
Rotation method: Varimax with Kaiser Normalization

7.8.4.3 Vendor related risks (VR)

There are 8 factors in this category. The outcome of an initial PCA indicates that Chi-square value for Bartlett's test of sphericity is 281.098 and Kaiser-Mayer-Olkin measure of sampling adequacy is 0.658, while the associated significance is 0.000 meaning that the population correlation matrix is an identity matrix. However, the factor "improper invoicing" had a lower than recommended communalities value of 0.330. The second PCA after deleting "improper invoicing" shown in table 7.50 gave satisfactory indicators (Chi-square value for Bartlett's test of sphericity = 244.411, Kaiser-Mayer-Olkin measure of sampling adequacy = 0.614, Significance = 0.000, and df = 21) affirming suitability of the data set of 7 factors for further analysis.

Table 7.50: KMO and Bartlett's test result for vendor related factors (VR)

Test		Values
Kaiser-Meyer-Olkin measure of sampling adequacy		.614
Bartlett's test of sphericity	Approximate Chi-Square	244.411
	df	21
	Sig.	.000

The result in table 7.51 shows that communalities for the 7 factors were satisfactory. Three components which accounted for 66.8% of total variance explained were extracted while all Eigen values were greater than 1 (7.52)

Table 7.51: Communalities for vendor related factors (VR)

	Initial	Extraction
Vendor locked up in long term agreement	1.000	0.647
Vendor opportunism	1.000	0.749
Financial failure of vendor	1.000	0.644
Poor quality of services by vendor	1.000	0.666
Inadequate staffing by vendor	1.000	0.783
Possibility of fraud by vendor	1.000	0.616
Inexperience and lack of requisite skills	1.000	0.774

Extraction method: Principal Component

Table 7.52: Total variance explained for VR

	Initial Eigenvalues			Extraction Sums of Square Loadings			Rotation Sums of Square Loadings		
Component	Total	% of Var.	Cum. %	Total	% of Variance	Cum. %	Total	% of Var.	Cum. %
1	2.271	32.445	32.445	2.271	32.445	32.445	1.979	28.273	28.273
2	1.331	19.013	51.458	1.331	19.013	51.458	1.596	22.802	51.075
3	1.077	15.382	66.841	1.077	15.382	66.841	1.104	15.766	66.841

Extraction method: Principal Component Analysis

An examination of the rotated component matrix (table 7.53) shows that three factors namely "vendor opportunism" (0.851), "inexperience and lack of requisite skills" (0.864), and "financial failure of chosen vendor" (0.868) were significantly loaded at the three components. A model with the three factors is therefore adequate to represent the group in the proposed outsourcing framework.

Table 7.53: Rotated component matrix for VR

	1	2	3
Vendor opportunism	**0.851**		
Inadequate staffing by vendor	0.795		
Vendor locked up in long term agreement	0.762		
Inexperience and lack of requisite skills		**0.864**	
Possibility of fraud by vendor		0.760	
Financial failure of chosen vendor			**0.868**
Poor quality of services by vendor		0.465	0.499

Extraction method: Principal Component Analysis
Rotation method: Varimax with Kaiser Normalization

7.8.4 Political factors (PF)

This group has three factors. The result of analysis shows that Chi-square value for Bartlett's test of sphericity is 320.104 while the associated significance is 0.000 meaning that the population correlation matrix is an identity matrix (see table 7.54). Besides, the value of Kaiser-Mayer-Olkin measure of sampling adequacy is 0.722, above the 0.5 threshold, thereby indicating that the first criterion for factor analysis was met. Also, table 7.55 indicates that all the factors had communalities greater than 0.5. For instance, loss of intellectual rights had 0.770; political instability had 0.847, while confiscation of vendor properties had 0.775.

Table 7.54: KMO and Bartlett's test result for political factors (PF)

Test		Values
Kaiser-Meyer-Olkin measure of sampling adequacy		.722
Bartlett's test of sphericity	Approximate Chi-Square	320.104
	df	3
	Sig.	0.000

Table 7.55: Communalities for political factors (PF)

	Initial	Extraction
Loss of intellectual rights	1.000	0.770
Political instability	1.000	0.847
Confiscation of vendor properties	1.000	0.775

Extraction method: Principal Component Analysis

The result also indicates that 1 component with Eigen value of 2.392 > 1 was extracted while it accounted for 79.7% of total variance explained as shown in table 7.56. Accordingly, the factor "political instability" with a loading of 0.920 as shown in table 7.57 is selected to represent the group.

Table 7.56: Total variance explained for PF

	Initial Eigenvalues			Extraction Sums of Square Loadings		
Component	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	2.392	79.737	79.737	2.392	79.737	79.737

Extraction method: Principal Component Analysis

Table 7.57: Component matrix for PF

	1
Political instability	**0.920**
Confiscation of vendor properties	0.880
Loss of intellectual rights	0.877

Extraction method: Principal Component Analysis

7.8.5 General factors (GF)

General factors (GF) are those which do not properly fit into any of the four groups above and comprise of four factors originally. The first PCA obtained KMO value of 0.577 while Chi-square value for Bartlett's test of sphericity was 48.712 while the associated significance is 0.000 meaning that the population correlation matrix is an identity matrix. However, "interruption to supply of services" was deleted as it scored 0.372 < 0.5 in the communalities extraction. Another PCA conducted (table 7.58) shows that the diagnosis remained significant (KMO = 0.517; Chi square = 37.023; df = 6 and significance of identity matrix = 0.000) and therefore suitable for further analysis. Also table 7.59 shows that all factors have values greater than 0.5 in the communalities extraction.

Table 7.58: KMO and Bartlett's test result for general factors (GF)

Test		**Values**
Kaiser-Meyer-Olkin measure of sampling adequacy		0.517
Bartlett's test of sphericity	Approximate Chi-Square	37.023
	df	6
	Sig.	0.000

Table 7.59: Communalities for general factors (GF)

	Initiation	Extraction
Natural disasters	1.000	0.585
Cultural rejection	1.000	0.650
Security concerns	1.000	0.704
Legal logjam	1.000	0.549

Extraction method: Principal Component Analysis

Two components were extracted (table 7.60). They accounted for 65.2% of total variance explained while their Eigen values were greater than 1. The rotated component matrix produced (table 7.61) indicates that "security concerns" and "legal logjam" achieved significant loadings on the two extracted components, which means that they are adequate to represent the group in the outsourcing framework.

Table 7.60: Total variance explained for GF

	Initial Eigenvalues			Extraction Sums of Square Loadings			Rotation Sums of Square Loadings		
Component	**Total**	**% of Var.**	**Cum. %**	**Total**	**% of Variance**	**Cum. %**	**Total**	**% of Var.**	**Cum. %**
1	1.451	38.258	38.285	1.451	38.258	38.285	1.269	33.727	33.727
2	1.036	26.910	65.195	1.036	26.910	65.195	1.219	31.468	65.195

Extraction method: Principal Component Analysis

Table 7.61: Component matrix for GF

	1	2
Security concerns	**0.823**	
Cultural rejection	0.720	0.364
Legal logjam		**-0.730**
Natural disasters		0.726

Extraction method: Principal Component Analysis

7.8.5 Discussion

As noted earlier, the aim of this study is to develop and validate a framework for outsourcing FM services in Nigeria's public hospitals. As one of the stated objectives of the study, this section assessed the criticality of risks associated with outsourcing of FM services theoretically grounded in relevant domain of literature. Accordingly, 35 risk

variables extracted from the literature were subjected to the opinion of respondents using a scale of 1 = very low to 5 = very high for both probability of occurrence and likely risk impact. Their responses were analysed using descriptive statistics and principal component analysis.

The rank analysis revealed that the top 5 critical risk factors are (1) inexperience and lack of requisite skills (2) possibility of fraud by vendor (3) financial failure of chosen vendor (4) vendor opportunism and (5) fall in morale of employees. This is consistent with past findings. For instance, researchers such as Earl (1996) and Kremic *et al*. (2006) argue that incompetence caused by inexperience and lack of the requisite skill by a vendor is the most compelling source of uncertainty in outsourcing. Quelin and Duhamel (2003) and Hoecht and Trott (2006) are of the view that hiring an inexperience vendor can have multiplier effects because the ability to adapt to changing business environment and capacity to make necessary and impromptu changes and reinvestments would be lacking. This can only make sense in Nigeria public organisations especially public hospitals where the concept of outsourcing of FM services is only beginning to pick up. Respondents therefore consider inexperience of vendor as potentially critical risk that should be taking into account by management. Other top rated risk factors such as possibility of fraud by vendor, financial failure of chosen vendor, and vendor opportunism are all components of vendor risks and can be triggered by inexperience of vendor. It is important to particularly note that by engaging in fraudulent practices rated as 2nd critical risk and opportunistic tendencies rated 4th, vendors are perceived to be pursuing their self-interest with guile. Potential fall in morale in morale of employees as a result of outsourcing component of FM services to external providers was rated 5th by respondents. This agrees with the assertion of Belcourt *et al*. (2006) who consider the effect on workers' morale as one of the primary risks of outsourcing. Researchers argue that low morale can affect productivity of organisations and also drive away skilled workers to new jobs. Even though this may be a plausible argument, it makes no sense to keep unproductive staff because of the risk of low morale. This study argues that most people have natural tendency to resist changes (Kumar and Eckhoff, 2005) particularly among public organisation in Nigeria. With efficient planning and management strategies such as the use of SWOT techniques, both in-house staff and vendors can work together and issues of low morale avoided. Findings also revealed the 5 least critical risk factors as (1) natural disasters (2) confiscation of vendor properties (3) inadequate staffing by vendor (4) political instability and (5) loss of intellectual

rights. This is not surprising because most of the risks can be regarded as politically motivated and *force majeure* risks. Respondents are less concerned about these risks largely associated with government interference and natural causes, possibly because either the Nigeria's political landscape is relatively stable or the chances of their occurrence is diminishing.

In order to select factors representing each of the 5 risks groups, PCA was conducted on each of them. *Client related risks (CR)* are likely undesirable events as a result of the overbearing influence of the client. It had 11 factors while four of them namely "loss of organisational competence", "inadequate planning of outsourcing policies", "excessive monitoring of performance" and "fall in morale of client employees" received significant loadings. This means that they represent the aggregate opinion of respondents regarding risks associated with clients towards vendors and the contract itself. A conspicuous implication is that outsourcing success can hardly be achieved without proper outsourcing policy framework to guide outsourcing of FM services in the hospitals; use of competent facilities managers capable of handling issues of low morale among in-house staff and higher than expected performance targets. *Outsourcing contract related risks (OC)* are a result of perceived inadequacies in the contract which may lead to either re-negotiation or outright cancellation of contracts. Out of the original 8, 2 factors namely "inadequate definition of scope and content" and "confidentiality leaks" were significantly loaded in the group. The implication is that respondents are concerned that inability to properly define scope and contents in a standard form of contract could harm the outsourcing relationship. This is particularly worrisome in most of the hospitals where outsourcing of services is at novelty stage. Confidentiality leaks can result to loss of core knowledge and skills leaving organisations hollow, which is why the decision to outsource must be critically examined in order not to make nonsense of the benefits of outsourcing. *Vendor related risks (VR)* occur when vendors overtly or covertly breach their obligations to the client and contract. The group has 8 distinct risk factors. However, three of them namely vendor opportunism, financial failure of chosen vendor, and inexperience and lack of requisite skills were significantly loaded during analysis to represent the group. It is instructive to observe that the three were the top three critical of the 35 risks factors used for analysis. This underscores the importance respondents attach to risks related to vendors. According to Power *et al*. (2004), vendors are very smart in maximising their positions with clients and can create barriers of exit for their clients and abandon non-

profitable clients. Thus, the more the client is dependent on the vendor, the more the vendor becomes opportunistic, and the more critical the risk. Selection of vendors with proven track records is a major challenge for hospital managers in this regard and can be a plausible solution. *Political risks (PF)* are described as uncertainties that may be as a result of interferences from government and its regulatory agencies capable of hindering outsourcing success. Of the three factors in this category, risks arising from political instability received the most significant loading. Though rated as the least critical risks by respondents, political instability can however impede prospects of outsourcing success only when it occurs. *General factors (GF)* include those factors which are described as generic because they can be associated with any of the other four categories above. However, 2 out of the original 5 factors received significant loadings during analysis to represent the group. They are security concerns and legal logjam. It is a common knowledge that security related issues remains an area of grave concern in any outsourcing contract. This is because any form of security lapse could trigger success or failure of an outsourcing transaction in such areas as theft of intellectual property, vulnerability of strategic information, loss of critical technologies, and data privacy issues. This is consistent with findings from past studies (Boehm, 1991; Rao, 2004; Aron *et al*., 2005; Gonzalez *et al*., 2005).

7.4.6 Summary

To summarize, it was established through analysis that 24 out of the 35 risk factors are critical, 4 factors are somehow critical, and 5 factors as not critical. Besides, 9 risk factors were selected based on their factor loadings from PCA and will be used to develop the outsourcing framework.

7.9 Chapter summary

This chapter presented a thorough analysis and discussion of findings from data collected through the questionnaire survey. The implication is that findings generated from this chapter are now available as variables to construct the outsourcing framework.

As a response to first objective of the study, 15 key factors that influence the decision to outsource FM services in public hospitals were identified. Besides, an empirical survey of FM services revealed that 6 FM services (plant management and repairs; general cleaning services; waste disposal and environmental management; landscape maintenance; security; and catering/restroom management) are completely

outsourced in all 74 hospitals used for the survey (objective two). Additionally, cleaning, security and landscape maintenance services received highest satisfaction ratings from respondents while all six hypotheses were supported by the SQSM structural equation model, indicating that quality attribute depicted by the outsourced FM services is antecedent to overall satisfaction (objective three). Finally, it was established through analysis that 24 factors are critical, 4 factors are somehow critical, and 5 factors as not critical risks associated with FM services in the public hospitals while 9 risk factors were selected based on their factor loadings to build the outsourcing framework.

Next chapter presents analysis and discussion of data collected through the case study qualitative interview.

CHAPTER EIGHT

CASE STUDY INTERVIEWS: ANALYSIS AND DISCUSSION

8.1 Introduction

Having defined sets of key variables required for developing the outsourcing framework in the previous chapter, this chapter presents the results and analysis of series of interviews conducted on four cases. This is to gain a deeper understanding of outsourcing practices in the hospitals with particular emphasis on facilities management services. In addition, findings from this case study interview are expected to be used to triangulate the outcome of the questionnaire survey in cross analysis.

Accordingly, the chapter begins with an introduction of the interview context, which describes the justification for the techniques adopted for data collection and analysis as well as other procedural issues involved during the interview sections. A description of selected cases is then followed before discussion of interview findings and cross analysis of the findings across the four cases on one hand and the questionnaire survey on the other is presented. Finally, concluding remarks are made in the chapter summary.

8.2 Data collection and analytical procedures

As noted in chapter 6 on research methodology, the case data was collected using semi-structured interviews. Justification for adopting semi-structured interview has already been made in section 6.9.7 of chapter 6.

The interviews were conducted at the top strategic level of the case organisations (heads of department, directors of works, physical planning, procurement and finance). They were chosen based on the assumption that they are best placed on matters of knowledge about strategic objectives of the hospitals and therefore able to provide useful and reliable information about outsourcing and facilities management services in the hospitals. An interview protocol (see appendix C and D for details) developed for the interview section comprises of three themes. They include general state of affairs in the case study entities, outsourcing practices, and FM services in the hospitals. The strategic level interview sections gave the researcher first-hand knowledge about day-to-day management of the hospitals and particularly opportunity to inquire about issues that could not be raised during the questionnaire survey.

Before the interview, introductory letters together with the interview protocol were sent to the four interviewees. This gave them pre-knowledge of the topic for discussion and contexts of the proposed interview as well as enough time to go over details and prepare for materials that may be useful. All interview sections were carried out in the offices of the interviewees who represent the case organisations and were conducted in English, the official language of business interaction in Nigeria. Also before the interview and as part of ethical considerations, it was emphasized that all interview sections would be kept confidential while answers and responses of participants would remain anonymous.

During the interview and in line with attributes of semi-structured interviews, conversation was allowed to proceed at its pace while the interviewer simply made sure that all questions and issues in the interview protocol were addressed within the agreed time frame. According to Creswell (2009), researchers record information from interviews by making hand-written notes, by audio taping, or by videotaping. Only audio tapes and notes were used during the interviews participants did not subscribe to videoing the proceedings. Audio tapes were specifically deployed to capture all points made during the interview and to enable the interviewer be highly observant and focused. This is because according to Adams and Schvaneveldt (1991), even the best interviewer cannot fully recall details well enough for the purpose of falling back to the information at the end of the interview. However notes-taking was used to complement the audiotapes where necessary.

8.3 Reliability and validity

Reliability in qualitative research is concerned with background of the interviewees and interviewers, quality of interview context, and quality of methods of data acquisition and interpretations (Bageis, 2008; Creswell, 2009). In this sense, quality and calibre of interviewees for this research who are heads of departments and directors of finance and works in their establishments are not in doubt (see table 8.1) which gave credence and reliability to information supplied by them. Regarding the context of interview, this was achieved as the interview progressed. For instance, a protocol consisting of all issues for discussion during interview was used a guide and crosschecked at the end of each interview section. To ensure reliability of data collection and interpretation techniques, recording and transcribing of interview data

were done using recommended guidelines (Flick, 2006). In this regard, passages within the same interview text were analysed against other text related to the same question.

Validity in the context of qualitative research refers to the process of assuring the degree of authenticity during interview and can be examined in terms of correctness of the contents of interview, social appropriateness and truthfulness exemplified in the self-presentation of the interviewee (Flick, 2006). Validity of interviewees' judgements was fully achieved in this research as their responses to questions were commonly recurring and did not contradict the general theory of contexts under investigation.

8.4 Selection and presentation of cases

One of the most important steps in case research is the selection process for the case organisations. According Eisenhart (1989), the organisation to be selected should be a typical representative of theoretical underpinning of the research being investigated. In other words, an organisation qualifies for case research only if it has some form of relationship with the research problem. Therefore, three out of the ten organisations involved in the questionnaire survey and one FM service provider (4 in all) were selected based on their willingness to enter the case study research. It is important to note that the researcher and the 4 organisations had earlier been involved in the questionnaire survey and therefore familiar with the contexts under investigation even before the start of the case study. However, it was unanimously agreed that both the case organisations and interviewees should remain anonymous in order to maintain confidentiality and sanctity of the research. The cases are numbered case 1 to case 4 while four experts namely interviewee 1 to interviewee 4 respectively represented the cases during interview.

The following gives a brief presentation of the four cases and the interviewees. Table 8.1 shows the profile of the interviewees for the four organisations.

8.4.1 Case 1

Case 1 organisation is a public sector (federal) teaching hospital and renders clinical services at a level that meets the requirement for tertiary services including training of medical students. With an initial 150 beds capacity, it has grown to 600 beds capacity and still expanding. When in the 1990s the federal government of Nigeria introduced the monetization policy to cut recurrent expenditure in the public service, the

hospital was one of the first to adopt outsourcing as a strategy to improve efficiency and effectiveness in the ways resources are managed for the public good. To do this, the hospital adopted the use of single package of services from dozens of local FM service providers on short term contract. The essence is to forge closer relationship with the community through job creation, and at the same time improve the effectiveness of procurement decision making. The interviewee for case 1 is the director of works in the hospital and oversees the proper implementation of policies relating to all works including new construction and FM services in the hospital. He holds a bachelor's degree in civil engineering and has held that post for over 10 of his 25 years' experience. He is a member of the Nigerian Society of Engineers (MNSE) and Nigerian Institute of Building (MNIOB).

8.4.2 Case 2

Case 2 was carried out in a referral teaching hospital established by federal government of Nigeria to provide primary, secondary and tertiary health services to citizens in the Niger-Delta area of south-south Nigeria. It is one of the first hospitals to use external vendors to manage most of its FM services. The hospital however recently began to decrease its wide service provider base by bundling different FM services and grouping them to one total facilities management (TFM) provider. The objective is to reduce cost and foster collaborative relationship approach in a centralised manner with the provider. The interviewee for case 2 is the director of finance and administration. A chartered accountant by profession, she holds a bachelor's degree in business administration and master's degree in project management, and has held that portfolio for more than 8 years of her 20 years' experience.

8.4.3 Case 3

Case 3 was conducted in a state owned general hospital in south-south Nigeria and has a capacity of 380 beds. It has been consistent with provision of quality health care since its establishment more than 90 years ago, although relatively small compared to the other two federal hospitals. The hospital has been renowned for use of outsourcing for most of its FM services and has a central unit manned by a facilities manager responsible for making outsourcing decisions. The service provider base consists of a combination of both single package and local FM managing agents and large TFM providers. The local service providers are considered as partners in job

creation among the local community while the TFM service provider is considered as a strategic partner. The interviewee representing case 3 organisation is the head of maintenance and facilities manager by profession. He holds a bachelor's degree in estate management and master's degree in construction project management. He is a registered member of the Nigerian institute of estate surveyors and valuers (NIESV) and has held the position for 5 of his 18 years' experience.

8.4.4 Case 4

In order to gain an understanding of the research problem from the vendor's perspective, case 4 was selected. Though relatively small compared to others, it is a facilities management company renowned for real estate portfolio management, FM provider specialising in public property holdings such as hospitals and schools mostly in the south-south geopolitical zone of Nigeria. The interviewee representing case 4 is an estate surveyor by profession and is the facilities manager for the company. He holds a bachelor's degree in estate management and master's degree in urban and regional planning and has a working experience of 14 years. He is a member of IFMA, Nigeria chapter.

Table 8.1:Profile of interviewees for the four cases

Interviewee	Profile	Profession	Years of experience	Interview duration
1	DW	Engineer	25	43 minutes
2	DFA	Accountant	20	40 minutes
3	HM	Architect	18	35 minutes
4	FMg	Estate surveyor	14	44 minutes

Note: DW = director of works; DFA = director of finance & administration; HM = head of maintenance; FMg = facilities manager

8.5 Interview findings and discussion

This section presents discussion of findings from content analysis of interviews' textual materials. The materials are grouped into 4 main contexts reflecting the original theme of the study's research problem. The sub-themes include general outsourcing practices in the hospitals (section 8.5.1), motives for outsourcing FM services in the hospitals (section 8.5.2), criticality of outsourcing risks (8.5.3), and outsourced FM services in the hospitals (8.5.4). Section 8.5.5 presents analysis and discussion of

findings for case 4 which sought a vendor's perspective on outsourcing of FM services. It is worth emphasizing that the researcher deliberately selected sections of the interviewees' dialogue that provided basic and satisfactory answers to questions asked and chose to ignore others that made no sense to the subject under investigation.

8.5.1 General outsourcing practices in case hospitals

The knowledge about general outsourcing practices in Nigeria's hospitals is important to establish a common understanding of the level of use and awareness of outsourcing practices in the hospitals. In that circumstance, interviewees were asked to comment on outsourcing policy frameworks in their hospitals, the number of service providers used for FM services, and the kind of contractual arrangement entered into with service providers.

Question: *Does your hospital have any policy in place for outsourcing services?* The responses are as follows:

Interviewee 1: No, but there are guidelines under procurement division for selecting service providers. Outsourcing in public organisations such as this hospital was necessitated as a result of the monetization policy of the Obasanjo administration of 1999-2007.

Interviewee 2: Not really. However issues relating to outsourcing of services generally are handled by the directors of administration, and works. Generally, most public organisations do not have any outsourcing policy written in black and white but carry them out as the necessity arises.

Interviewee 3: No formal policy is in place in this hospital and most government hospitals. However, all forms of contractual engagement with service providers are handled by the procurement department.

Question: *What is the state of facilities management (FM) services in your hospital? Do you have designated facilities manager in charge? If no, could you give reasons?*

Interviewee 1: FM services are integral part of services carried out to support our core medical services especially cleaning and security services. There is no designated facilities manager in the hospital because all services are coordinated from different departments or divisions.

Interviewee 2: FM is an important aspect of our commitment to patients, visitors, and other stakeholders who use the hospital. However, it is not a fully developed department in this hospital which is why there is no designated facilities manager yet.

Interviewee 3: This hospital has a functional FM division with a professional facilities manager in charge. He is responsible for making decisions regarding hiring of service providers and those services that should be done by in-house staff.

Question: *How many service providers does your hospital use for FM services; and what kind of contracting arrangement do you engage with them?*

Interviewee 1: There are several of them on short term contract, mainly managing agents and contracts. It is the opinion of the hospital to engage them on short term basis to understudy their activities and also afford us the opportunity to engage many of them thereby contributing to employment generation. However, PFI is used for larger projects such as the on-going design and construction of a new block within the hospital premises.

Interviewee 2: Before now, we had about 6 service providers but have now employed a TFM contractor to carry out all FM services.

Interviewee 3: There are currently three (one TFM provider and two managing contractors). There are however fixed term contracts for some other services not classified as FM services.

It is clear from the responses above that most public hospitals do not have policy framework governing outsourcing practices in place. It can also be inferred that there is no definite FM unit fully devoted to FM services in most hospitals. Instead, they are spread over the different divisions ranging from administration, works, to physical planning. This is despite revelation that FM is growing and increasingly being appreciated by hospital management as testified to by the interviewees. The possible reason for this is lack of appropriate funds. For instance, one of the interviewees was said to have expressed happiness about this research because according to him, findings from the research would serve as basis for asking for funds from government to execute laudable initiatives including outsourcing that have the potential of improving efficiency and effective management of resources for the public good. Another conspicuous implication of this finding is that FM vendors reporting to different lines of

authority in different divisions in the hospital portends prospect for fraudulent practices and duplication of functions. Findings from past studies such as Ventovuori (2007) suggest that centralised decision making for FM services outsourcing is more flexible and capable of reacting speedily to changes and needs. This study agrees entirely with this assertion because with fewer managers to make decisions, the less the bureaucracy particularly among public organisations such as hospitals.

8.5.2 Motives for outsourcing FM services in case hospitals

Since public hospitals like every other corporate organisation have limited resources (human and material), a deliberate and constant challenge is to allocate resources based on priority of needs and level of competitiveness leading to strategic sourcing decision. One of the major objectives of undertaking this case interview is to confirm the outcome of the questionnaire survey. Therefore, participants were asked to provide answers to pertinent questions relating to considerations that motivate their establishments to outsource FM services.

Question: *What do you think are the factors that motivate your hospital to outsource FM services? Please rate them using 1 = not influential; 2 = somehow influential; 3 = moderately influential; 4 = influential; 5 = highly influential and comment on your answers.*

Table 8.2:Result of interviewees' rating of outsourcing decision factors

Considerations	Interviewee 1	Interviewee 2	Interviewee 3	Average score	Rank
Cost	5	4	4	4.3	1
Strategy	2	5	5	4	2
Innovation	1	2	3	2	5
Quality	3	3	4	3.3	4
Time	2	1	2	1.7	6
CSR	4	4	3	3.7	3

The outcome of the interviewees' rating is shown in table 8.2 and indicates that cost, strategy and CSR were the top three rated considerations with an average score of 4.3, 4 and 3.7 respectively while surprisingly, quality consideration was ranked 4th. This is clearly inconsistent with the outcome of the questionnaire survey as result from table 7.6 indicates that quality, cost, and innovation considerations were the top three rated in that order. There is a note of caution here in that the interviewees were just three out of

74 samples used for the questionnaire survey. Interestingly however, findings from both lines of enquiry suggest that cost considerations remain the most important and influential factor when deciding on whether to use service providers or in-house team for FM services provision in the hospitals.

Below are excerpts from the interviewees' responses to the question:

Interviewee 1: Although the need to cut cost is a major consideration, the need to empower members of the local community through job creation is another important factor. It has less to do with timely delivery of services.

Interviewee 2: The need to focus on our primary medical services and leverage on the skills and expertise of service providers is a major influential factor. Besides, cost transparency particularly with dwindling resources and improved quality of services are also very influential.

Interviewee 3: There is an insufficient number of staff in the hospital to manage FM services. The need to strategise by involving external hands to free up responsibilities of in-house staff is a major contributing factor. Cost consideration is another major driver as funding from government has in recent times continued to diminish.

8.5.2.1 Cost consideration

It is generally acknowledged in the literature that cost transparency is one of the most important benefits of outsourcing. There was strong agreement among the three cases with respect to this claim. As noted in the previous chapter, most Nigeria's public sector organisations notably hospitals are groaning with challenges occasioned by dwindling funding from government sources. This result is therefore a clear indication that accessing vendor's cost structure will achieve cost reduction without compromising on the quality and performance of the services offered by the hospitals.

8.5.2.2 Strategy consideration

Strategic positioning by way of focusing on core competencies is another benefit of outsourcing. With regards to this assertion, case 2 and case 3 agree that it is highly influential in determining whether to outsource FM services. They were convinced based on feedback from stakeholders particularly staff and patients that the decision to allow services providers to take over administration of such services as cleaning, security and catering, has freed up staff for other roles in the hospitals. Besides, the

decision was said to have paid off as the lackadaisical attitude to work by in-house staff has been replaced by prompt and honest service delivery by vendor staff. However, case 1 was not fully convinced that strategic positioning was the most significant factor influencing the decision to outsource FM services in his hospital.

8.5.2.3 Corporate social responsibility (CSR)

CSR has received tremendous attention in the literature on account of the argument that a corporation, public or private is a social function whose responsibility transcends caring for its shareholders to giving security and sustainable life to its employees, customers, local communities, and society as a whole (Gao and Zhang, 2006). It involves all forms of social benefits such as provision of jobs and social amenities including schools, water, and electricity. In order to make meaningful impact through CSR, most organisations key into this trend by outsourcing some of their non-core functions to service providers as a way of boosting employment. There was agreement among case 1 and case 2 about this assertion as they rated it "influential" while case 3 rated it "moderately influential". This implies that the hospital decided to outsource some of its FM services to service provider in order to empower the community. This study agrees entirely with this development because of its tendency to reduce friction and youth restiveness common in the study area on account of perceived neglect and destruction of the environment caused by oil exploration.

8.5.2.4 Quality consideration

The need to improve quality of products and services has also been adduced as a major advantage of outsourcing in organisations. The concept of quality service has generated considerable amount of discourse among researchers and practitioners. This is rightly because it exerts strong influence on satisfaction of users. Surprisingly however, two of the three cases (case 1 and case 2) were not fully enthusiastic about quality as a motivator for outsourcing FM services rating it "moderately influential". Table 8.2 however indicates that case 3 rated it "influential". The best plausible explanation is that although hospitals regard quality service delivery as very important, they do not consider it as a major motivator for outsourcing FM services.

8.5.2.5 Innovation consideration

A focus on innovation related attributes enables an organisation to gain access to vendor's products, services, skills and emerging technologies (Hoecht and Trott, 2006;

Ghodeswar and Vaidyanathan, 2008). With an average score of 2, it is evident from table 8.2 that innovation is not considered a major motive for outsourcing FM services in the case hospitals. This could be attributed to the assertion that the current stage of outsourcing in Nigeria is emerging particularly among public section organisations such as hospitals. Therefore, hospitals are not fascinated by innovation but by far more important considerations such as cost when deciding on whether to outsource or not.

8.5.2.6 Time consideration

Regarding time, the comments of the interviewees were fairly consistent as there was strong agreement that it is not an important consideration when deciding on whether to outsource FM services or not in the case hospitals. For instance while case 1 and 3 scored it as "somehow influential", case 2 was categorical in rejecting it, scoring it "not influential". Although this finding is at variance to other studies along similar line of enquiry, it is important to point out that what is applicable in other countries may not be the same with Nigeria because of several intervening circumstances such as level of infrastructure, cultural difference and stage of development of the concepts under investigation.

8.5.3 Criticality of risks associated with outsourcing of FM services in case hospitals

As integrated facilities management is becoming increasingly larger and more complex among client organisations mainly as a result of outsourcing, so also are the inherent risks associated with it. It is even more worrisome among Nigeria's public sector organisations such as hospitals where it is seen to be at an emerging or trial stage. This section therefore presents the outcome of an interaction held with key management staff of the three case hospitals aimed at triangulating the outcome of the questionnaire survey reported in the previous chapter. Accordingly, participants were asked questions relating to likely risks associated with the decision to outsource some components of FM services in their respective hospitals.

Question: *Please rate the criticality of the following risks using a scale of 1 = not critical; 2 = somehow critical; 3 = moderate; 4 = critical; and 5 = highly critical; and comment on your answers where possible.*

In order to improve interviewees' understanding of the question, the researcher used the first five minutes to explain the risk categories and the variables that constitute each category.

Table 8.3: Result of interviewees' rating of outsourcing risks

Risks	Interviewee 1	Interviewee 2	Interviewee 3	Average score	Rank
Client risks	1	1	3	1.7	5
Contract risks	5	4	5	4.7	1
Vendor risks	4	5	4	4.3	2
Political risks	3	3	2	2.7	4
General risks	4	4	3	3.7	3

Table 8.3 indicates that interviewees from the case hospitals agree that the top three critical risks are those related to the outsourcing contract, vendors and those described as general risks. The result also indicates that client risks are not critical.

Below are excerpts from comments by the interviewees in response to the question:

Interviewee 1: I think most public sector organisations are more worried about risks that may accompany the outsourcing contract itself. This is mainly because of emerging nature of the use of outsourcing in this hospital which is why we decided to restrict to small scale use of vendors for our services as a way of studying the trend. Let me also add that this research will be helpful in this regard as the outcome is likely to boost our confidence in the use of outsourcing for our non-core services.

Interviewee 2: Although there is probability that all the risks can occur, the most critical in my own view are those related to opportunistic behaviour of the vendor. Another very important risk to watch is the one related to the contract itself. This is because lapses such as scope and content of outsourcing contract could be exploited by overzealous vendors. I do not however see any reason why the client's action can be construed as being risky.

Interviewee 3: In my own view, risk associated with the outsourcing contract itself is the most critical. There are several lapses in the contractual arrangement as it stands in most public sector institutions in Nigeria. Vendor risks are also very critical as they can be opportunistic in areas where there may be lapses. This is why this hospital takes the issue of continuous training for staff responsible for procurement and monitoring of contractors' performance very serious.

8.5.3.1 Contract risks

As noted in chapter 5 of this thesis, contract related risks are the undesirable events as a result of perceived inadequacies in the outsourcing contract itself which may lead to either re-negotiation or outright cancellation of the outsourcing contract. For example, inadequacy of standard form of contract, inadequate definition of scope and content of services, poor system for rewarding performance (Atkin and Brooks, 2009) could hinder the smooth running of an outsourcing contract. With regards to this assertion, two of the three participants representing case 1 and case 3 agree that contract related risks are highly critical in hindering outsourcing success if measures are not proactively taken to mitigate it. One can argue that the perceived drawbacks currently being experienced in some of the hospitals are attributable to loopholes in the contracting system as most of the outsourcing contracts are awarded without laid down procedures. It is therefore important to emphasise the need for proper legal and process framework that would lay bare the contractual responsibilities of each parties and penalties in case of default.

8.5.3.2 Vendor risks

There is a general agreement among all the participants that failure to acknowledge the risk posed by vendor inadequate could be very disastrous. To this end, representatives of case 1 and case 3 scored it as "critical" while that of case 2 scored it as "highly critical". This clearly validates the outcome of the questionnaire survey in which the top 4 critical of 35 risks used for the survey were in the vendor risk category and goes to indicate the concern of hospital management about vendor opportunistic behaviours. Although findings from the questionnaire survey indicate that stakeholders are generally very satisfied with the quality of services outsourced in the hospitals, proactive measures should be taken throughout each phase of the outsourcing process to ensure that the right vendors are selected and properly monitored.

8.5.3.3 General risks

The risk factors that fall under the general factors include natural disasters, cultural rejection, fear of uncertainty by parties, security concerns, legal logjam, and inability to manage user involvement and expectations. Evidence from the literature indicates that they are critical in deciding the outcome of an outsourcing contract. Participants representing case 1 and case 3 rated it as "critical" while case 2 rated it as moderately critical. The presumption is that though their likelihood of occurrence is highly

minimal, when they occur, the impact is substantial. This is in agreement with findings from the questionnaire survey where it is shown not to be too critical against success of outsourcing relationship among the hospitals.

8.5.3.4 Political risks

Nigeria's political terrain is relatively stable at the moment which may be why political risks had an average score of 2.7 points and rated overall 4th by the participants. It is therefore highly unlikely that government would for instance confiscate the properties of vendors by way of nationalising them or that vendors would lose their intellectual rights on account of political instability in war-like situations. This concurs with the outcome of questionnaire survey in which the three constructs under this risk category were the least rated in terms of both probability of occurrence and severity of impact.

8.5.3.5 Client risks

Evidence from the literature indicates that client related risks are the undesirable events or outcomes as a result of the overbearing influence of the principal in the outsourcing contract which may affect the outsourcing relationship. It is clear from the interaction that all the participants agree that client risks are not critical. This is not surprising as all the participants were from client based organisations making it impossible to think otherwise. The result however contradicts the findings from questionnaire survey as three attributes related client risks namely fall in morale of employees, conflict of interest, and inadequate planning of outsourcing policies received significant ratings in terms of criticality from respondents who cut across clients, general users of FM services in the hospitals, and vendor staff.

8.5.4 Outsourced facilities management services in the case hospitals

As noted in previous chapters, this study aims to develop a best practice framework for outsourcing facilities management services in Nigeria's public hospitals. For the purpose of the interview, a list of 27 FM services used for the questionnaire survey was given to the participants alongside the interview protocol. The participants were asked to respond to questions relating to two main sub-themes namely outsourced FM services in the hospitals and the most valuable of the outsourced FM services in terms of quality of service by vendors.

Question: *Among the list of 27 FM services, please tick those currently being outsourced in your hospital and rate the quality of outsourced services using the scale of 1 = highly unsatisfactory 2 = unsatisfactory 3 = moderate 4 = satisfactory and 5 = highly satisfactory. Comment on your answers where possible*.

The outcome of participants' response regarding outsourced FM services and rating of quality of services in their hospitals is shown in table 8.4.

Table 8.4: Result of interviewees' rating of quality of outsourced FM services

FM services	Interviewee 1	Interviewee 2	Interviewee 3	Remark
Real estate/property mgt	5		4	highly satisfied
Extension and alterations		4		satisfied
Facility refurbishment		4		satisfied
Plant maintenance and repairs	3	3	4	moderately satisfied
General cleaning services	5	5	5	highly satisfied
Waste disposal mgt	4	3	4	satisfied
Landscape maintenance	4	5	4	satisfied
Security	5	5	5	highly satisfied
Courier services		4	4	satisfied
Car park maintenance	4	4		satisfied
Office furniture & stationery	4			satisfied
Catering/restroom mgt	5	4	4	satisfied

Table 8.3 indicates that case 1 has 9 of the 27 services outsourced; case 2 has 10 services outsourced while case 3 has 8 services outsourced to FM service providers. It also shows that interviewee 1 representing case 1 rated quality of four services as "highly satisfactory", another four services as "satisfactory" and one service as "moderately satisfactory", interviewee 2 rated quality of three services as "highly satisfactory", five services as "satisfactory", and two services as "moderately satisfied". Result equally shows that interviewee 3 rated the quality of two services as "highly satisfactory" and six others as "satisfactory".

Below are excerpts from comments made by the interviewees in response to the question:

Interviewee 1: To be honest, the conduct of our vendors has been very fantastic. It is only in few cases that we have had course to query their conducts. There is arguably

notable difference between their services and that of our in-house staff particularly on the burning issue of punctuality and commitment to work.

Interviewee 2: The quality of services by our service providers is generally satisfactory and very encouraging. It can only be improved upon especially in the area of up-to-date skills, expertise and equipment. The hospital is planning to expand the scope of FM services being outsourced and the outcome of this research will help in deciding on that step to a great extent.

Interviewee 3: Because of our vendor selection process, the quality of the output of our vendors has been very encouraging which is why we have 90% rate of successful renewal of their contracts. However, we are unable to expand the scope of outsourced services because of funding restraints. We made a strong case for increased use of outsourcing for most of our services when the state commissioner for health visited some months ago.

Based on the empirical findings above, there are 6 FM services commonly outsourced across the case hospitals which confirm the outcome of the questionnaire survey. Although the findings indicate that an average of 9 FM services is outsourced in the case hospitals, there is a sense of unanimity among participants to expand the scope of services outsourced in the near future. With regards to quality of outsourced services, it was established from result in table 8.3 and additional interaction with the participants, that there is phenomenal improvement in the quality of FM services outsourced to service providers. For instance, cleaning, security and catering services received the highest rating of satisfaction while plant maintenance services and their personnel received "not so significant" satisfaction among the participants. The outcome is consistent with that of the questionnaire survey but threw up some interesting implications. Nigeria is a country battling to overcome epileptic power supply threatening to ruin its economy. Owing to the sensitive nature of medical services, most public hospitals rely on power generators 24 hours a day. While this study is not about the cost implications of the power supply, the fact that participants from both strands of inquiry (questionnaire and case study) are not fully satisfied about the maintenance and repairs of these power plants means that management must not rest on their oars until such a level that near perfection is achieved.

8.5.5 Vendor's perspective on outsourcing of FM services in public hospitals

In order to get the vendor's perspective on the concepts under investigation, the case study protocol was reformatted to suit that purpose for interviewee 4 representing case 4 which is a FM service provider. A sample of interview protocol used for the case study is shown is appendix D. Four questions relating to four subthemes were asked the participants.

Regarding the issue of whether public hospitals have outsourcing policy framework in place, the interviewee was of the view that as public sector organisations are now becoming aware of the benefits of outsourcing, most are yet to fully embrace the concept which is why there are no clearly spelt out mechanism for outsourcing notably in public institutions generally. As a consequence, every hospital drafts its own framework as it deems fit. It is worth mentioning that it is only recently that the Nigerian Information Technology Agency (NITDA) launched the national outsourcing policy which addresses the necessary legal, institutional and economic framework targeted at IT based outsourcing only that would facilitate dialogue and business networking opportunities with global leaders in IT outsourcing. What this means is that there are no specific frameworks to guide public institutions especially hospitals on the concept of outsourcing for services other than IT.

With regards to the question of motives for outsourcing FM services in public hospitals, the interviewee was quick to point out cost consideration as the most important factor among client hospitals his FM Company has worked for. According to him, the current economic squeeze has exacerbated the need to embrace strategies that could help bring down operational costs. The interviewee also agree that strategic repositioning and need for improved quality of service are other strong motives but not as important as cost. This is clearly consistent with the view of the participants from the other three cases who in any case are the clients.

On the question of the most critical risk, the interviewee was categorical about what he describes as the most critical risk likely to impede outsourcing success. According to him, "*I am strongly convinced based on experience that inconsistency in the outsourcing contract itself poses the highest threat. This is because whatever lapses that exist in the contract if not detected on time have the tendency to trigger other undesirable consequences such as client and vendor related risks as well as some aspects of what you describe as general risks such as legal logjam".* This underscores

the genuine need for a framework capable of avoiding such intricacies likely to mar any outsourcing relationship in public institutions particularly hospitals.

With regards to the question of FM services commonly outsourced in public hospitals, the interviewee gave cleaning, security and catering as the three most common janitorial services outsourced in government hospitals. He described this development as unfortunate despite the huge outsourcing successes recorded in the private sector. He however attributed this to the notion of "not sure of outcome" syndrome among public institutions and the fear of backlash from trade unions who are afraid of their members losing their valuable jobs to vendors. On the issue of quality of outsourced services, the interviewee preferred to leave that to the users of the services.

8.6 Chapter summary

To summarise, this chapter used a multi-case study approach to establish through interview sections with 4 participants the following:

1. Most public hospitals do not have a policy framework for outsourcing generally and FM services in particular giving room for duplication of functions and non-establishment of functional FM units to handle facilities management activities.
2. Cost consideration was found to be the most important factor influencing the decision to outsource FM services in Nigeria's public hospitals although other factors do play less significant roles.
3. Risks associated with outsourcing contract itself was found to be the most critical likely to affect outsourcing relationship and success for FM services in Nigeria's public hospitals.
4. Six FM services namely plant maintenance, landscape maintenance, cleaning, security, waste management, and catering were found to be the most commonly outsourced across the case hospitals while cleaning, security and catering services received the highest satisfaction ratings. Plant maintenance services however got the least satisfaction rating.

This outcome would now be fed into the outsourcing framework. The next chapter presents the development and validation procedures for the proposed framework.

CHAPTER NINE

FRAMEWORK DEVELOPMENT AND VALIDATION

9.1 Introduction

This study aims to develop a framework for outsourcing facilities management services in Nigeria's public hospitals. To achieve this, two previous chapters (7 and 8) identified sets of factors and variables associated with outsourcing of FM services from two perspectives; namely questionnaire survey and multi-case study.

This chapter presents details of the framework developmental phases and procedures adopted to validate it. Key components of this chapter include a brief description of the concept of the framework, methodology adopted for constructing the framework, description of phases of the framework and validation procedures.

9.2 Concept of outsourcing framework

According to the online business dictionary from business dictionary (2013), a framework is a broad overview or outline of interlinked items that supports a particular approach to a specific objective, and serves as a guide that can be modified as required by adding or deleting items. Many researchers have investigated the concept of outsourcing and developed frameworks and models for it, many of which have proved to be very useful (see full details of some of these frameworks in Section 3.8, Chapter 3 of the literature review). It is evident from the literature review that none of the studies established a mechanism that fully integrated key constructs of decision support system and risk mitigation within the same framework while none incorporated a service level agreement (SLA) that clearly specifies the dos and don'ts of each party to any outsourcing contract. Besides, none of the previous frameworks was made with a clearly defined methodology for risk identification, assessment and management specific to facilities management services in a public sector setting where the primary goal is to provide public service for the public good.

Based on the above, the proposed framework seeks to:

1. Establish a mechanism that will help hospitals in the public sector to formulate strategic policies regarding outsourcing generally and strengthen the conduct of FM services.

2. Produce a service level agreement specific (SLA) for outsourcing FM services in hospitals.
3. Incorporate key findings from questionnaire survey and case study to guide public hospitals for FM projects implementation with flexibility for modifying it as appropriate.
4. Provide an empirical basis for public hospitals to justify the adoption of outsourcing for FM services and seek for increased funding from the government.

It is expected that these would help to enhance resource management in the hospitals and therefore make the hospitals sustainable. In order to develop the outsourcing framework, the following procedure was adopted:

i. An in-depth literature review was carried out to crystallise the research gaps and identify potential areas to justify the outsourcing framework;
ii. A questionnaire survey was conducted to (1) identify outsourcing decision factors (2) conduct an empirical survey of outsourced FM services in the hospitals (3) assess satisfaction of users about quality of outsourced FM services and (4) determine risks associated with outsourcing of FM services;
iii. A qualitative case study was then organised to capture a better understanding of outsourcing practises and how they influence corporate strategies as it relates to FM services in the hospitals; and
iv. Four distinct phases are integrated using a flow chart methodology to depict various stages of the outsourcing process beginning at the upper end with decision support processes or activities down to lower end with the establishment of procedures for monitoring performance.

9.3 Development of outsourcing framework

The development of the framework is based on the outcome of review of extant literature, the questionnaire survey and case study interviews. Specifically, factors influencing the decision to outsource FM services applicable to Nigeria's public hospitals are identified; risks associated with the decision to outsource identified and assessed; while knowledge about global best practice service level agreement (SLA) was explored. Additionally, the concept of user satisfaction of quality of outsourced FM services was examined using the two lines of enquiry (survey and case study). All these findings and recommendations were then integrated to produce the general process and

structure of a standardised framework. The framework, presented as a process model, is generic; meaning that it can be applied across all public organisations and across the services sector outside facilities management services.

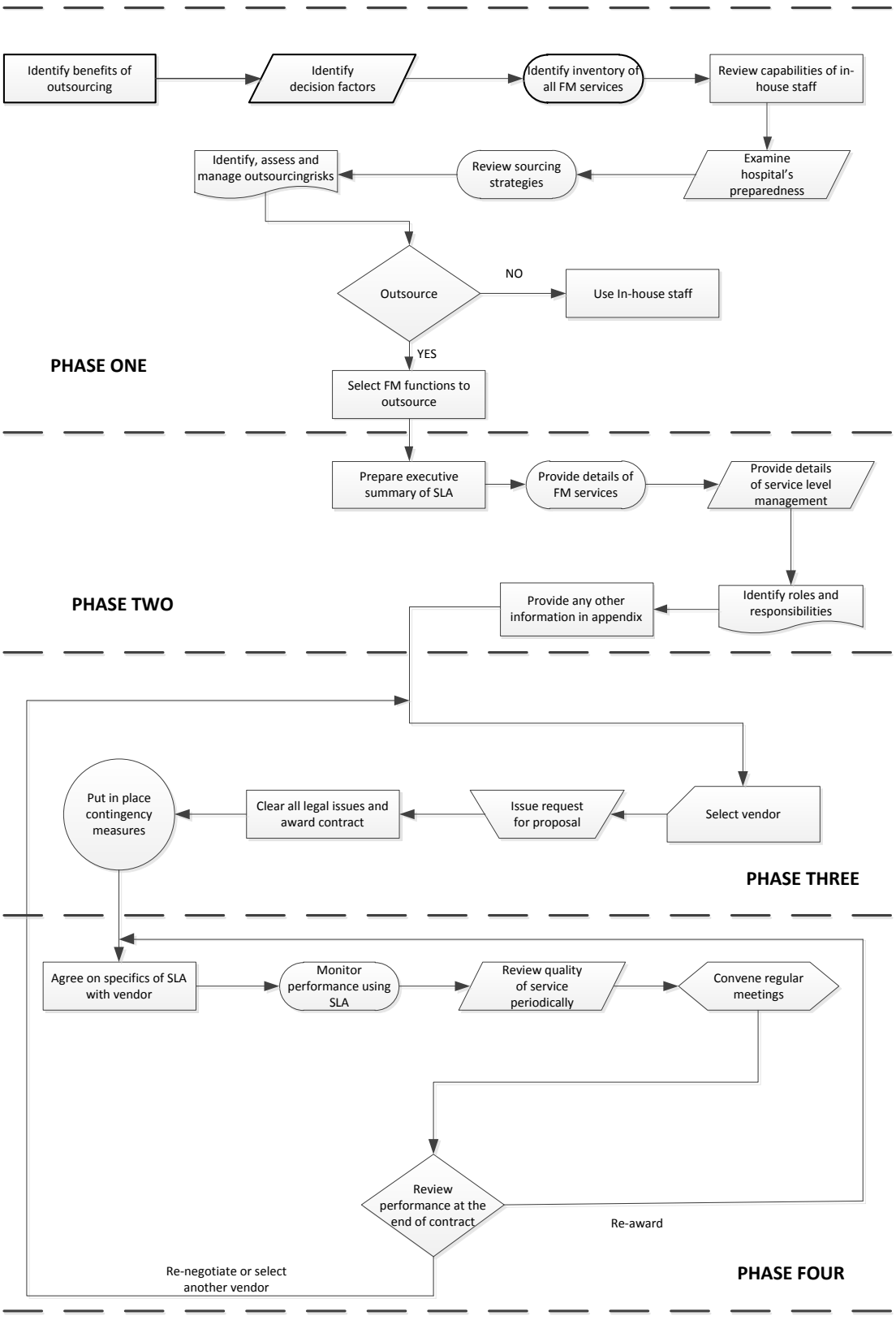

Figure 9.1: Framework for outsourcing FM services

The general process and structure of the developed framework is illustrated in figure 9.1 and comprises of four sequential phases. For each of the phases, a number of sub-activities have been identified. The four processes forming the framework are described as follows:

9.3.1 Decision support processes

This phase, made of eight functional activities involves analysing all functions and facilities at the disposal of the hospital, together with possibilities and risks with a view towards assisting in deciding whether to outsource or not. The nine activities, discussed as inputs and outputs are given below:

i. Benefits of outsourcing

One of the cardinal inputs is the accruable benefits of outsourcing. Many authors have listed such benefits as cost transparency, leverage on skills, expertise, and technologies, increased quality, flexibility and focus on core competencies. This function identifies these benefits as it relates to facilities management services in the context of public hospitals. Although it is difficult to exhaustively identify all conceivable benefits, it has been suggested that many of the desired benefits of outsourcing are general across organisations, even though additional benefits to public agencies such as hospitals may include better accountability and management, ability to re-focus scarce resources onto core functions at a lower cost (Kremic *et al*., 2006). This was re-echoed by all participants during the case study interview.

ii. Decision factors

This section analyses the factors influencing the decision to outsource FM services in hospital and identifies the main motives for outsourcing based on the hospital's strategic objectives. A total of 31 factors from the outsourcing literature was analysed using both quantitative questionnaire survey and qualitative case study interviews while 15 were selected using principal component analyses for developing the framework (please see full detail in section 7.4 of chapter 7). The implication is that these factors are considered as inputs in the decision making process.

iii. Inventory of facilities management services

This function identifies all facilities related services described as non-core functions that support the strategic and operational objectives of the hospital. An empirical survey of these services was carried out during the questionnaire survey. Findings indicate that majority of the 27 services used for the survey are not available in the hospitals. However, from the services available, only 6 are currently outsourced across all the 74 hospitals involved in the survey. This inventory enables the hospital to identify the services that need to be outsourced and those to retain in-house.

iv. Review of capabilities of in-house staff

This activity involves assessing the capabilities and capacities of hospital's internal staff in managing and carrying out facilities management services efficiently and effectively. In other words, it examines whether the performance of in-house staff meets recognised standards of cost transparency, timely delivery of services and quality satisfaction of users of the facilities. However, finding from the questionnaire survey and case study suggests that the quality of services of in-house staff of the hospitals with regards to FM services leaves much to be desired. In any case, the anticipated outcome of this function is either the capabilities of in-house staff are able to match that of external providers or the services are candidates for outsourcing.

v. Hospital's preparedness for outsourcing

This function examines the hospital's structure and its ability to manage the outsourcing relationship using such techniques as strengths, weaknesses, opportunities and threats (SWOTS). It involves looking into the hospital's records to explore its strengths; the likely weakness that may serve as clog on the wheel of outsourcing progress; opportunities as a result of outsourcing and threats from competitors including identifying what are core and non-core functions to protect the integrity of the hospital; all in the context of hospital's preparedness for outsourcing.

vi. Selection of a sourcing strategy for facilities management

This function examines the various sourcing strategies available as possible alternatives to outsourcing. This includes arm's length relationship, operational and strategic partnering, and in-sourcing among others. It also involves

examining different forms of outsourcing arrangements such as total facilities management, management contracting, and managing agent.

vii. Risk management processes

1. This function identifies and evaluates risks of outsourcing each of the FM services. The risk identification and assessment for this framework has already been done during the two strands of research (questionnaire survey and case study). Based on a review of literature, 35 risk factors were identified and assessed in the context of facilities management services in public hospitals. Twenty four (24) of the factors were found to be critical while 5 were found not to be critical.
2. Based on assessment of the 24 risk factors, 9 were selected for the framework based on their factor loadings during principal component analysis. This is however not to indicate that the other 15 factors are not significant. Rather, they should be taken holistically when putting in place mitigation measures before going ahead with outsourcing.
3. This function designs and put in place standard mitigation mechanisms to address the risks identified and assessed as critical in (1) and (2) under the risk management processes. These include but not exclusive to conducting background checks on potential vendors; putting in place first party insurance to protect hospitals' interests in any outsourcing deal; developing appropriate plan and control measures to monitor activities of vendors and own staff to be involved in managing any outsourcing relationship; and addressing and documenting third party liability issues such as clarity for handling injuries to employees and other users of outsourced services as well as cultural differences.

viii. Select activities to outsource

If the decision is "yes" to outsourcing, this function involves selecting the FM services to outsource as indicated in the framework illustrated in figure 9.1. If the decision is "no", then use the in-house staff as indicated in the framework. It is important to quickly emphasise that selecting the services to outsource is a function of resources at the disposal of the respective hospital.

9.3.2 Preparation of service level agreement

Once the decision is made to proceed with outsourcing of FM services, a service level agreement (SLA) between hospital and its service provider is prepared. This process involves preparation of standard set of guidelines and specifications detailing responsibilities of each party to the outsourcing arrangement including key performance indicators (KPIs) for each FM service, rewards and penalties. The SLA is divided into five main parts as follows:

i. Executive summary

This gives a full description and overview of the SLA, which is basically to perform the services described and meet or exceed conditions that have been negotiated or agreed upon.

ii. Service(s) description

This part of SLA provides detailed description of all FM services and the negotiated service level agreements associated with each of them. Additionally, there should be clear definition of each service descriptors as follows:

- A precise and unambiguous description of the FM service being performed, measured and reported.
- A measurement time frame usually in terms of dates and times over which measurements are to be made such that the hospitals can determine if the service agreement is exceeded, met or violated.
- Specific roles and responsibilities of hospital should be provided. This involves identifying who is responsible for taking each measurement and how each measurement is confirmed.
- Provision should be made for service KPIs (acceptable form of quality) expected from each of the outsourced FM services and their personnel. Where a service performance range is acceptable to all parties, a desired maximum service level requirement (best case) and minimum acceptable (worst case) should be specified, together with rewards and penalties tied to each.
- Identify sources of data such as where measurement data is collected, what is collected, where it is collected, how it is collected and who is responsible for gathering the data. It is also vital to identify who to notify

and under what conditions in times of emergency or during out out-of-compliance situations.

iii. Service level management

This part provides details of the process necessary for ensuring continuous monitoring of vendor performance with regards to service levels spelt out in part 2 including events or time frames that triggers process execution. This includes (1) tracking and reporting of service performance (2) problem escalation and dispute resolution (3) service change management including re-negotiating service level requirement terms (4) implementing new FM services and service level requirements (5) periodic review of service level and (6) approval processes.

iv. Roles and responsibilities

This part of SLA specifies general or over-arching roles and responsibilities of both the hospital and its vendors, and roles and responsibilities of any government committee, agency or key stakeholders involved directly or indirectly in the outsourcing contract. Specifically, hospital in its capacity as the client should be able to provide:

- Timely, proactive and complete information about necessary changes from the hospital, problems relating to vulnerabilities, hazardous and delicate material storage and any other unusual activity that would require vendor to take extra caution such as health and safety details.
- Complete and thorough details of its infrastructure architecture including maintenance profile especially in areas where vendor services are involved.
- Guarantee for continuous flow of cash payment for work done.

v. Appendices

This final part of SLA incorporates any other information not captured in the main body of SLA but relevant to the outsourcing relationship such as telephone and contact details of all members of FM in-house team and keys catalogue.

A sample of an SLA is shown in the appendix.

9.3.3 Development of outsourcing contract procedure

This phase of the framework begins once the SLA preparation is complete. It involves all processes which would lead to the eventual selection of a service provider or service providers and award of outsourcing contract. It is divided into five main functions as follows:

i. Vendor selection

The vendor selection process is anchored on the strategic policy objectives of the hospital on outsourcing which may be based on cost consideration, in which case the vendor with the lowest bidding price is selected. Other considerations could be based on CSR objective, in which case the hospital decides to recruit several local vendors to boost jobs and empower local communities. It could also be strictly based on the need for quality service, in which case the vendor(s) with the highest track record on quality is selected.

ii. Request for proposal

Based on the criteria above, a request for proposal is issued to pre-qualified vendors. The request for proposal defines the scope of work and obligations expected from the successful bidders. This is before the contract is awarded as it is possible for some vendors to be dropped at this stage.

iii. Clearing of legal issues and award of contract

The successful bidders are at this stage invited for final negotiation of contract fee while all legal issues surrounding the contract are examined by both parties to clear all areas of ambiguities. Once this is resolved the contract is awarded and the selected vendor(s) asked to commence work.

iv. Contingency

This function provides for putting contingency measures in place should the selected vendor(s) fail to meet up with agreed conditions for resuming work on site. One way of doing this is to place some pre-qualified vendors on a waiting list, with a provision that they would be called up if the approved vendor(s) fails to meet up to its obligations.

9.3.4 Establishment of procedure for performance monitoring

This phase of the framework involves management of the outsourcing contract using the SLA prepared during the previous phase and other agreed clauses in the signed contract. The hospital's facilities manager or whoever holds that portfolio on behalf of the client hospital has the ultimate responsibility in ensuring that the approved vendor delivers services according to terms of agreed SLA and applies incentive measures (penalty or reward) where necessary. The input to this phase include all measures taken by the vendor to deliver quality service while the expected output is full evaluation of the outsourcing contract including lessons and best practice identified and properly documented for the next round of contract awards. This phase has five main activities as follows:

i. The facilities manager in conjunction with the vendor agrees on the specifics of the SLA. This is to give the vendor final opportunity to clear all forms of doubt and ambiguities with the facilities manager.
ii. Performance is monitored using quality indicators in the SLA. It is important to note that performance monitoring using SLA is different from preparation of the SLA. Preparation of the SLA takes place at the second phase of the framework while the prepared document is used to monitor progress of work.
iii. Quality of service is reviewed periodically and documented for presentation to vendor during meetings. It is to serve as quality control. This is anchored on the need to ensure that the level of user satisfaction on quality of outsourced services is regularly passed on to the vendors as a way of building trust and strengthening relationships between vendors and the hospital management on one hand; and between vendors and general users of the facilities on the other. Please see full details of concept of user satisfaction and user quality in section 7.7.3 of chapter 7.
iv. The facilities manager should convene regular meetings with vendors to discuss areas of urgent improvement and where necessary areas that need change in quality specifications.
v. Review performance by enforcing penalty or disciplinary measures for non-performance and reward high standard of best practice. The outcome of the review is then documented and used as a benchmark for the next line of contract award, re-award or re-negotiations.

9.4 Framework validation

This section reports on the process of validating the outsourcing framework developed in the previous section. The essence of validation is to test the workability and practicability of the developed framework to give its greatest possible assurance of accuracy. This is akin to allowing the outcome of this research benefit practice in a way that gives room for feedback from practitioners in the FM industry as well as hospital administrators about the framework's strengths, weaknesses and suggestions on how to rectify loopholes observed during the process of validation.

According to Yahaya (2008), conventional model validation process takes the form of validating (1) the conceptual model (2) the computerised model (3) operational model and (4) data used to construct and validate the model. The validation procedure employed in this study is that of conceptual framework validation. This is because, although there is the intention of producing a computerised model of this framework in a future research, the current study is at the conceptual stage while validation of data used to construct the framework has already been done in the previous chapters.

In order to verify and validate the outsourcing framework, potential participants were first identified. These included 15 hospital administrators in Nigeria and 5 professionals with facilities management portfolios representing 3 client based organisations (2 private and 1 public) and 2 FM organisations based in Edinburgh, United Kingdom. A formal letter of request for consent (appendix E) was then sent to the 15 identified participants in Nigeria by email and to the 5 facilities managers in Edinburgh by hand. Upon confirmation of participation in the validation, copies of the evaluation instrument (please see a copy attached in the appendix F) were sent by email to Nigerian participants while face-to-face interview was arranged for the 5 participants in Edinburgh. They were asked to rate the developed framework based on logical structure, clarity and intelligibility, comprehensiveness, practicability and efficiency using a scale of 1 = extremely poor; 2 = poor; 3 = average; 4 = above average; and 5 = excellent. In addition, participants were asked to state the framework's potential strong and weak points as well as any suggestions aimed at improving the validity and effectiveness of the framework. Martis (2006) had earlier argued that the purpose of validating a framework is to ensure its appropriateness of structure, logical and casual relationships, effectiveness, pragmatism and clarity.

9.4.1 Validation results

Eleven (11) out of the original 15 validation questionnaires sent out to participants were returned giving a response rate of 73%. Data from table 9.1 indicate that the participants were made up of 3 facilities managers, 2 heads of property and facilities, 3 heads of works and 3 directors of physical planning. It is worth pointing out that the 3 heads of works and 3 directors of physical planning were part of the 11 that returned their assessment from Nigeria. In terms of organisation type, there was 1 representative each of a city council, a banking institution and a consultancy organisation (all the three based in Edinburgh, UK), 3 representatives each of facilities management organisation, federal teaching hospital, and state specialist hospital.

Table 9.1: Background information about participants

Metrics	Frequency	Percentage
Job description		
Facilities manager	3	27.3
Head, properties & facilities	2	18.1
Head of works	3	27.3
Director, physical planning	3	27.3
Total	**11**	**100**
Type of organisation		
City council	1	9.1
Banking institution	1	9.1
Consultancy	1	9.1
FM organisation	3	27.3
Teaching hospital (federal)	3	27.3
Specialist hospital (state)	2	18.1
Total	**11**	**100**
Years of experience		
< 10 years	1	9.1
10 – 20 years	6	54.5
20 – 30 years	3	27.3
> 30 years	1	9.1
Total	**11**	**100**

In terms of experience, table 9.1 also shows that 6 participants had working experience of the range between 10 to 20 years, 3 had 20 to 30 years of experience in FM industry, while 1 each had less than 10 years and more than 30 years. What this implies is that there is a good spread among participants in terms of professional pedigree and commensurate years of working experience in the facilities management industry particularly at the top management cadre which provides strong measure of reliability able to produce true and reasonable assessment of the outsourcing framework.

Result on assessment of the framework shown in figure 9.2 indicates an overall positive assessment as all the attributes used for assessing the framework received mean scores of 4 points or above. For instance, practicability which measures the ability of the framework to benefit practical application received the highest score of 4.55. This shows that participants are convinced that the outsourcing framework would be of immense benefit to hospitals as a way of ensuring sustainable resource management in hospitals.

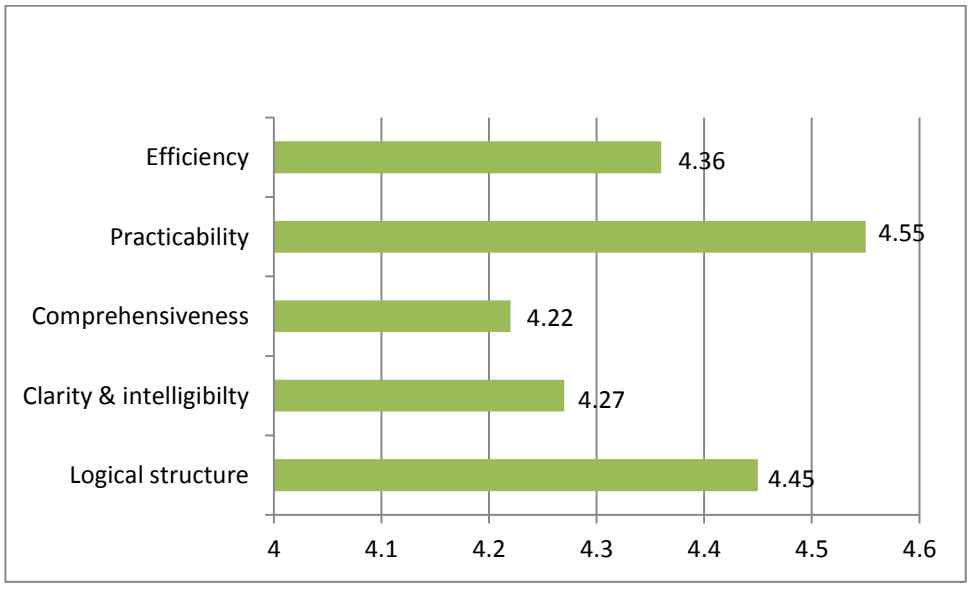

Figure 9.2: Result of framework assessment

Also, logical structure which sought to assess the consistency of the outsourcing framework to real life situation scored 4.45. The result indicates that phases of the framework are logically coherent and consistent with what is obtainable in the industry. Efficiency measures the ability of the framework to accomplish its predetermined tasks with optimal degree of time and resources. It has a mean score of 4.36. Regarding

clarity and intelligibility, the essence was to establish the ability of users to understand how it works. A score of 4.27 as shown in figure 9.2 means that components of the framework are clear, intelligent and easy to understand. Comprehensiveness measures the degree of completeness of the framework. In other words, are there very necessary omissions, additions or corrections? It got a mean of 4.22 which indicates a good assessment. Although it received the least rating, there was no indication from participants on what particular areas of the framework needed adjustments.

It is clear from the above that all participants are pleased with the framework. The comments of the participants are classified to illustrate the framework's strong points, weak points and suggestions as follows:

Strong points

1. It will be useful during the pre-procurement stage
2. It provides proactive information to guide the outsourcing process
3. It is very comprehensive and stands on a good potential
4. It solves the problem of aligning hospital's strategic objectives with the decision to outsource
5. The framework exposes risks unknown to hospital administrators until now
6. Provides a link between service level agreement, decision to outsource and service control
7. The first of its kind, a comprehensive and intelligent mechanism that could be used for functions other than facilities management services
8. Provides practical ways of maintaining cordial relationship between vendors and hospital management as well as checks and punitive measures against poor performance
9. Provides opportunity for incorporating feedback from users of facilities outsourced
10. Clear, free of ambiguity and very flexible.

Weak points

1. Some of the phases need further explaining
2. Not clear on how the risk factors were arrived at
3. Difficult to implement in real practice because of the complexities

4. A very good guide but I am not sure bureaucratic bottlenecks will allow it to work in Nigeria

Suggestions

1. It will be fantastic if this can be used to produce a user friendly software package
2. A need for further case study verification to improve on the workability and relevance of the framework
3. It will be a good idea if this framework together with a summary of the outcome of this research is made available to all public hospitals in Nigeria

A close examination of the participants' comments shows some encouraging feedback about the framework. Their views about the framework's strong points are very positive and indicate that it has successfully achieved its stated objective as a link between decision to outsource, inherent risks involved and establishment of service quality monitoring mechanism to ensure outsourcing success. Likewise, comments about the framework's weak points are very useful and support the fact that there are no major drawbacks in the framework. Besides, 3 of the concerns can be taken care of as the framework continues to be updated.

On suggestions made by participants, it is the intention of this research to go beyond this stage of PhD by developing a programming software package for use by practitioners in the FM industry. Besides, it is also planned to commence case study exercise across public sector organisations in Nigeria at the end of this study aimed at collating data on ways of strengthening the framework and establishment of facilities management units in public organisations notably hospitals. It is also planned to organise workshops using the platform of IFMA, Nigeria' chapter to illustrate implementation of the framework to a body of facilities managers and get feedback on challenges militating against practice of facilities management in Nigeria.

9.5 Chapter summary

To summarise, this chapter presented details of how the proposed framework was developed and validated. The framework was developed using inputs from literature review, two strands of questionnaire survey, and multi-case study. It was validated using inputs and suggestions from 11 participants in both Nigeria and UK and who are practitioners in the industry. Their assessment of the framework was based on a

validation instrument calibrated to measure the framework's logical structure, clarity and intelligibility, comprehensiveness, practicability and efficiency. The outcome of the assessment shows that overall the framework is relevant and useful for sustainable resource management both during pre-procurement and contract stages of the outsourcing process.

CHAPTER TEN

CONCLUSIONS AND RECOMMENDATIONS

10.1 Introduction

This thesis is the result of a painstaking investigation undertaken to explore the concept of facilities management outsourcing and develop and validate a framework for outsourcing facilities management services in Nigeria's public hospitals. Previous chapters outlined the study's background and statement of research problem, its justification and scope, details of appropriate methodology selected, and actual findings from the questionnaire survey and case study. This chapter presents a summary of main findings from this novel research, including how the aim and objectives of the study were achieved, and a review of the published papers and their relevance to this research. Reflecting back on the research process, this chapter also focuses on the main implications of the study and a number of recommendations including recommendations for further research before the concluding remarks are made.

10.2 Main findings

Major findings emanating from this study are summarised under two broad headings of (1) findings from literature review, and (2) meeting aim and objectives of the study.

10.2.1 Findings from literature review

The review of extant literature was conducted to gather knowledge as well as empirical evidence underpinning the study with a view towards providing the needed direction and justification for the study. Accordingly, a number of findings were made as follows:

1. The first stream of review was on the concept of facilities management. The review shows that even though the practice of facilities management has grown over the past years, it is grossly under-researched particularly in Nigeria where it is acknowledged to be in its infancy.

2. Outsourcing decisions are motivated by a number of factors that may be strategic (cost competitiveness for example) as well as tactical (meet conformance quality requirements for example) (Kroes and Ghosh, 2010). A thorough literature of existing research was conducted to identify factors that influence the decision to outsource by most organizations. A total of sixty-five (65) factors that may influence the decision to outsource by most organizations were identified and will form the variables to be used for determining the key factors that influence the decision to outsource FM services in this study. They are classified into 8 broad categories namely cost/financial, strategic and innovative related factors. Others include revenue, quality, time, service and other related. They cover a wide range of issues cutting across multi-case studies in a variety of industries such as manufacturing and Information Technology (IT) as well as other organisations. They represent the most commonly cited factors as regards outsourcing decisions but however, do not represent a comprehensive inventory of all possible factors influencing the decision to outsource. Sadly however, the factors so far identified in literature have largely been investigated under sectors other than facilities management.
3. Risk factors in outsourcing have also been largely treated in the outsourcing literature. A total of fifty (50) factors were identified from available literature and will form the variables that would be used to determine the risk factors associated with the outsourcing of FM services by the institutions. They are classified into client, contract, and vendor risk. Others are political and general risks.
4. In order to conduct an empirical survey of FM services being outsourced in hospitals, a list of major components of FM services were developed from the available literature. Although all the components of facilities management services reviewed from past studies are very vital to the practice of facilities management, this study adopts a modified version of the cluster of support services developed by Chitopanich (2004), IFMA (2007), Opaluwah (2005) and Alaofin (2003) as the components of facilities management services for the study.
5. Although there are several frameworks available in outsourcing literature, it is evident from the literature review that none of the studies established a mechanism that integrates constructs of decision support system and risk mitigation within the same framework while none incorporated a service level

agreement (SLA) that clearly specifies the dos and dons of each party to any outsourcing contract. Besides, none of previous frameworks was made with a clearly defined methodology for risk identification, assessment and management specific to facilities management services in a public sector setting where the primary goal is to provide public service for the public good above any other consideration such as profits.

6. Indications from this literature review reveal that despite the growing popularity of outsourcing as a strategy for improved performance in public sector institutions, a wide range of knowledge gaps bordering on making the right decisions, its effect on performance and identifying the necessary risks exist. Besides, Europe, North America and recently South East Asia have retained the focus of outsourcing studies with little or no attention paid to the developing economies such as Nigeria.

10.2.2 Meeting aim and objectives of the study

The overall aim and objectives of this study have earlier been stated in chapter one. The following explains how the research process addressed the stated aim and objectives of the study.

To recall, the aim of the study was to develop and test an integrated framework for outsourcing facilities management services with a view towards improving facilities management services provision in public hospitals. It was achieved through the process of framework construction based on findings from the questionnaire survey and case study. Specifically, four distinct phases were integrated using a flow chart methodology to depict various stages of the outsourcing process beginning at the upper end with decision support processes or activities down to lower end with establishment of procedures for monitoring performance.

Objective one: is to determine a set of key factors that influence the decision to outsource facilities management services in public hospitals. A major step in the research process was to establish the theoretical background of the outsourcing decision making process and review past empirical studies on outsourcing decision factors. Taxonomy of 31 refined factors was then used for the questionnaire survey and case study interview. Findings revealed that 25 of the 31 factors were significant in

explaining the decision to outsource FM service in Nigeria's public hospitals; while 15 of them grouped into 5 broad categories were recommended for framework construction based on their factor loadings during analysis. Besides, it was also established from the study that "to improve performance standard", "to improve quality of services" and to improve timely delivery of services" are the top three rated factors which are consistent with previous studies of Kremic *et al*. (2006), Lau and Zhang (2006) and Assaf *et al*. (2011).

Objective two: is to conduct an empirical survey of facilities management services outsourced in public hospitals. It relied on previous studies (Thompson, 1990; Avis, 1995; Alaofin, 2003; Chitopanich, 2004, Opaluwah, 2005; and IFMA, 2007) to generate a set of 35 constructs of FM services. However, after pilot-testing and validation of survey instrument, a final list of 27 variables was developed and grouped into 4 categories. Six (6) facilities management services including plant management and repairs; general cleaning services; waste disposal and environmental management; landscape maintenance; security; and catering/restroom management are completely outsourced in all the 74 hospitals. The result also indicates that storage and distribution of medical supplies; purchasing and contract control, and human resource management are completely done by the in-house team of the hospitals.

Objective three: is to assess the satisfaction of users of outsourced FM services and to model the satisfaction of users on quality of outsourced facilities management services study examined how quality of outsourced FM services has impacted on overall satisfaction of users. To generate distinct constructs for assessing user satisfaction on service quality, a list of constructs proposed in the larger set of studies were analysed (see section 2.8 of the literature review). Based on the original 22 items of SERVQUAL (Parasuraman *et al.*, 1985, 1988) and 44 items of dimensions of quality (Van Ree, 2009), the service quality constructs for this study were condensed to 27 items grouped under 6 FM services. Findings reveal that service quality in relation to catering, plant maintenance, waste management, security, landscape maintenance, and cleaning services received very high satisfaction ratings from respondents. The three top services are cleaning (6.17), security (6.01), and landscape maintenance (5.73). Furthermore, all six hypotheses were supported by the service quality satisfaction model (SQSM) indicating that quality attribute depicted by the outsourced FM services is antecedent to overall satisfaction. Specifically, "security services to overall satisfaction" received the highest path loading of 0.88, and was closely followed by "cleaning

services to overall satisfaction" with a loading of 0.82. "Plant maintenance services to overall satisfaction" was however supported even though it had a very low path coefficient of 0.38.

Objective four: is to assess the probability and severity of risks associated with outsourcing of facilities management services in public hospitals. As one of the stated objectives of the study, this objective assessed the criticality of risks associated with outsourcing of FM services theoretically grounded in relevant domain of literature. Accordingly, 35 risk variables extracted from the literature were subjected to the opinion of respondents using a scale of 1 = very low to 5 = very high for both probability of occurrence and likely risk impact. Their responses were analysed using descriptive statistics and principal component analysis. Findings established 24 out of the 35 risk factors as critical, 4 factors as somehow critical, and 5 factors as not critical. Besides, 9 risk factors were selected based on their factor loadings from PCA to develop the outsourcing framework. The rank analysis also revealed that the top 5 critical risk factors are (1) inexperience and lack of requisite skills (2) possibility of fraud by vendor (3) financial failure of chosen vendor (4) vendor opportunism and (5) fall in morale of employees.

Objective 5: is to use the outcome of the four objectives above to develop and test a process model for outsourcing facilities management services in public hospitals. Drawing on theoretical analysis and input from the questionnaire survey and case study, an outsourcing framework comprising 4 components was developed to assist public hospitals administrators achieve sustainable best practice resource management. The first component, made of nine functional activities involves analysing all functions and facilities at the disposal of the hospital, together with possibilities and risks with a view towards assisting in deciding whether to outsource or not. The second component involves all activities leading to preparation of standard set of guidelines and specifications detailing responsibilities of each party to the outsourcing arrangement including key performance indicators (KPIs) for each FM service, rewards and penalties. The third component of the framework begins once the SLA preparation is complete. It involves all processes which would lead to the eventual selection of a service provider or service providers and award of outsourcing contract. The fourth phase of the framework involves management of the outsourcing contract using the SLA prepared during the previous phase and other agreed clauses in the signed contract.

10.4 Implications of the study

This thesis provided major noteworthy contributions to knowledge. This section presents the practical and theoretical implications of the study.

10.4.1 Contribution to theory

First, the study contributes to the construction management theory by applying theoretical framework developed from extant literature to empirically develop and validate a best practice framework for outsourcing facilities management services. It offers a plausible detailed description of how a careful implementation of the various stages of the framework can lead to sustainable facilities management delivery.

Second, the study complements the body of knowledge on "make or buy" decision theory by provided empirical insight into key attributes of outsourcing decision motives for facilities management services from the point of view of Nigeria's public sector spectrum that can serve as benchmark for deciding on whether to outsource or not. This is particularly remarkable as it is the first known quantitative study complimented by a qualitative case study to test such theoretical concept in Nigeria.

Third, the study equally provides an unambiguous contribution to exiting body of knowledge on outsourcing risks particularly as it relates to facilities management. It reinforces the theory that risks exist in any form of relationship but developed a distinct body of factors associated with outsourcing of facilities management services particularly from the context of Nigeria's public sector institutions. For instance, the study discovered that consistent with previous studies, inexperience and lack of requisite skills, possibility of fraud by vendor and vendor opportunism are major risks affecting outsourcing of functions.

Fourth, the study also provides the first ever survey based on empirical evidence about the state of facilities management services outsourced in Nigeria's public hospitals. The survey suggests a relatively low level of usage of outsourcing for its services as only a handful of FM services are outsourced in most of the hospitals. This is contrary to reports from the private sector where it is said to be enjoying considerable amount of support and patronage.

Fifth, the study establishes a causal relationship between antecedents of satisfaction and service quality within the context of Nigeria's public hospitals and

provided insight into outsourced services that received high level of satisfaction among stakeholders. It is important to point out that it is the first empirical study based on the researcher's knowledge to confirm the pivotal role of perceived service quality for satisfaction of facilities management services.

10.4.2 Practical implications

The findings suggest some practical implications for public sector organisations notably hospitals.

More is now known as a result of this study about what factors constitute drivers for outsourcing facilities management services in Nigeria's public hospitals. With an aggregate opinion from 74 public hospitals, the study provides hospital administrators and public managers with a list of prioritised factors for making rational informed decision about outsourcing of services in the hospitals. Moreover, the study also provides a list of the most critical outsourcing risks from the point of view of public sector resource management against which standard mitigation measures can be put in place both proactively and during the course of outsourcing relationship. Additionally, the findings provide insight into the satisfaction level of users of outsourced FM services in the hospitals.

10.5 Recommendations for further research

Following the findings from this study, four (4) major areas of research are recommended as follows:

1. A major outcome of this research is the development of a framework for outsourcing FM services. As suggested during the validation process, further research is being considered to develop user friendly application software capable of incorporating weightings of importance attached to decision factors and severity of risks associated with outsourcing as identified form this research. This will however require more data collection and rigorous validation procedure to overcome perceived drawbacks associated with previous researches.
2. Another major finding of this novel research is a framework of decision factors that influence the decision to outsource FM services. There is the need to establish how these factors have impacted on both the volume of outsourcing

and service-level performance of FM services. A conceptual structural equation model aimed at exploring the causal relationships between outsourcing decision factors and service-level performance of FM services has already been presented at the 2013 *International Conference on Construction and Real Estate Management* (ICCREM) conference in Karlsruhe, Germany. Further research is being planned to empirically test the model using data from Nigeria.

3. It is worth noting that this study is limited to public hospitals within the south-south geopolitical zone of Nigeria. Although it could be generalized in a lesser scale to other parts of Nigeria, more comparative research need to be carried out in other developing African nations to generate a comprehensive database of motives and risks in FM outsourcing.
4. Another major finding of this study is the discovery that vendor related risks are the most critical risks capable of eroding the benefits derivable from outsourcing of FM services. It is therefore necessary to conduct further research aimed at developing standardised criteria for vendor selection processes. This will provide monitoring and evaluating procedures that will ameliorate concerns shown in this study.

10.6 Closing note

The main aim of this study was to develop and test a framework for outsourcing facilities management services as way of contributing to efforts targeted at ensuring sustainable resource management in Nigeria's public hospitals. The largely exploratory research resulted in important and far reaching conclusions relevant to the academia and practitioners alike. However it is important to emphasise that the study contained in this thesis has only began to address the many thorny issues important in the management of public services for the public good in Nigeria.

Successful development and validation of the framework has also led to the identification of key factors that influence the decision to outsource facilities management services as well as critical outsourcing risks that may mar successful outcome of an outsourcing relationship between clients (public hospitals) and potential facilities management vendors. Furthermore, user perception about quality of outsourced services had significantly high satisfaction ratings while all six hypotheses were supported by the service quality satisfaction model (SQSM).

To close, sustained effort is needed to further refine, define, and understand the concept of facilities management investigated in this research, principally through fruitful areas of research identified in section 10.5.

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APPENDICES

Appendix A: Management Questionnaire

1 7th July, 2012

Dear Sir/Madam,

MANAGEMENT QUESTIONNAIRE SURVEY

This survey is part of an on-going research on ***outsourcing of facilities management services in Nigeria's public hospitals***. It is aimed at developing a model for outsourcing non-core services in the hospitals as part of measures targeted at adding value to the management of resources in the nation's public hospitals.

The following working definitions are provided for your ready reference:

Facilities management outsourcing: is the contracting out of all or part of facilities management services in the hospital to an external provider for a fee over a given period of time. ***Facilities management services***: are the services that support the core or primary activities of a hospital. Such include repairs and maintenance, cleaning, security services and others. ***Client:*** is the institution (hospital for example) that obtains services from an external service provider while ***Vendor*** is the external service provider or organisation that carries out the services

We would therefore appreciate if you could spare us 30 minutes of your time to respond to the questionnaire. Be assured that your participation is highly valued and absolutely necessary, while precautions have been put in place to protect your privacy and anonymity. If you desire to have a copy of the outcome of this research, please indicate your email address at the personal characteristics section (A) of the questionnaire. We will be glad to provide you with one after the data collection and analysis are completed.

Thanks in anticipation.

Yours Sincerely,

Dubem I. Ikediashi **Prof Stephen Ogunlana**

Doctoral degree candidate Main supervisor

SURVEY ON OUTSOURCING DECISIONS IN NIGERIA'S PUBLIC HOSPITALS

(July, 2012)

SECTION A PERSONAL CHARACTERISTICS

PC01. Please indicate your present position in the hospital.....

PC02. My professional affiliation is (Please insert).....

PC03. Academic Qualification: A. HND [ ] B. BSc [ ] C. MSc D. MBBS [ ] D. PhD [ ]

E. FMCPH/FWCS [ ] F. Other (Please specify).....

PC04. Number of years in service: A. 1-5 years [ ] B. 6-10 years [ ] C.11-20 years [ ] D. 21-30 years [ ] 5. Above 30 years [ ]

PC05. Email address (Optional) ----------

SECTION B HOSPITAL CHARACTERISTICS

HC01. What kind of ownership structure is your hospital?

A. Federal [ ] B. State [ ]

HC02. How would you categorise your hospital?

A. Tertiary/Teaching hospital [ ] B. Secondary/General hospital [ ]

HC03. What is the approximate number of staff in your hospital?

A. 0 – 50 B. 51 – 100 C. 101 – 500 D. 501 – 1000 E. Above 1000

HC04. What is the average number of patients in your hospital?

A. 50 – 100 B. 101 – 500 C. 501 – 1000 D. 1001 – 5000 E. Above 5000

HC05. What is the number of beds in your hospital?

A. Less than 10 [ ] B. 11 – 50 [ ] C. 51 – 100 [ ] D. 101 – 500 [ ] E. Above 500 [ ]

HC06. What is the approximate value of contracts awarded in a year by your hospital (in Nigerian naira)?

A. Less than 10m [ ] B. 10m – 50m [ ] C. 50.1m – 100m [ ] D. 100.1m – 500m [ ] E. Above 500m [ ]

HC07. What is the percentage of value in (HC06) allocated to outsourcing of facilities management services?

A. Less than 5% [ ] B.5% - 10% [ ] C. 10% - 20% [ ] D. 20% - 50% [ ] E. Above 50% [ ]

HC08. What kind of contractual arrangement do you have with your vendor?

A. Total FM [ ] B. Managing contractor [ ] C. Managing agent [ ] D. Private Finance Initiative PFI [ ]

SECTION C: IDENTIFICATION AND IMPACTOF FACTORS INFLUENCING DECISION TO OUTSOURCE FM SERVICES

Outsourcing decision factors are the factors that motivate hospital administrations to outsource facilities management services. Thirty-five (35) factors classified into eight (6) broad categories have been identified from the literature and through a pilot study. Please indicate by ticking **(√)** as appropriate the degree to which you believe the factors have influenced the decision to outsource facilities management services in the hospital using a 7 point Likert scale of: **1 = strongly disagree 2= disagree 3= slightly disagree 4 = neutral 5 = slightly agree 6 = agree 7 = strongly agree.**

Influence scale:

Code.	Outsourcing Decision factors	Influence scale						
		1	2	3	4	5	6	7
Cost Related Factors								
DF01	To make cost transparent							
DF02	To reduce investments in assets							
DF03	To reduce invested capital funds in non-core functions							
DF04	To access vendor's cost efficient system							
DF05	To achieve cost reduction with enhanced performance of services							
Strategy Related Factors								
DF06	To focus on core competencies							

DF07	To improve on strategic positioning							
DF08	To increase flexibility							
DF09	To multiply sourcing in case of uncertainties							
DF10	To handle varying demand more effectively							
DF11	Restricted by insufficiency in own resources							
DF12	To compare performance of in-house staff with vendor's workers							
DF13	To play along with the trend in privatization							
DF14	To share risks							
DF15	To limit size of staff							
Innovation Related Factors								
DF16	To gain access to new products, services and technologies							
DF17	To obtain skills, expertise and ideas							
DF18	To obtain technologies not available in-house							
DF19	To stimulate innovation among personnel							
DF20	To permit quicker response to new needs							
Quality Related Factors								
DF21	To improve performance standard							
DF22	To improve quality of service to users							
DF23	To improve mutual trust between hospital and customers							
Time Related Factors								
DF24	To improve timely delivery of service							
DF25	There's not enough time to acquire tools and techniques in-house							
DF26	To improve process responsiveness and cycle times							

Service to Community								
DF27	To improve on stakeholders' satisfaction							
DF28	To improve customer relation							
DF29	To improve labour relations							
DF30	To improve on corporate social responsibility of the hospital							
DF31	To create jobs for local communities							
DF32	**Overall outsourcing decision**							

SECTION E: EMPIRICAL SURVEY OF FACILITIES MANAGEMENT SERVICES BEING OUTSOURCED IN THE HOSPITALS

A list of facilities management services drawn from a combination of an intense literature search and outcome of a pilot study is presented. It consists of forty (29) services classified into five (4) main categories.

Please tick **(**√**)** as it applies to your hospital by indicating 3 for those currently being outsourced, 2 for those done by in-house staff and 1 for "not applicable" at all as follows:

3	**2**	**1**
Outsourced	In-house	Not Applicable

Code	**Facilities management services**	**Scale**		
		3	**2**	**1**
Real estate/Property management				
FM01	Real estate/property portfolio management			
FM02	Leasing and sub-letting services			
FM03	Retail outlets and space renting			
FM04	Extension and alterations			
FM05	Demolitions			

Maintenance and Repairs				
FM06	Facility refurbishment			
FM07	Plant maintenance and repairs			
FM08	General cleaning services			
FM09	Waste disposal and environmental management			
FM10	Health and safety management			
FM11	Landscaping maintenance			
Administration Management and Office Services				
FM12	Security			
FM13	Courier services			
FM14	Storage and distribution of medical supplies			
FM15	Reception and telephone operator			
FM16	Public relation/liaison services			
FM17	Travel arrangements			
FM18	Car park maintenance			
FM19	Purchasing and contract control and negotiation			
FM20	Office furniture and stationary provision			
FM21	Human resource management			
Employee Support Services				
FM22	Child nursery administration			
FM23	Recreations			
FM24	Catering/Restroom management			
FM25	Residential accommodation			
FM26	Community affairs			
FM27	Management of employees with special needs			

Thank you very much for taking the time to complete this questionnaire survey

Appendix B: General Questionnaire

18th March, 2013

Dear Sir/Madam,

GENERAL QUESTIONNAIRE SURVEY

This survey is part of an on-going research on ***outsourcing of facilities management services in Nigeria's public hospitals***. It is aimed at developing a model for outsourcing non-core services in the hospitals as part of measures targeted at adding value to the management of resources in the nation's public hospitals. Your input is therefore highly valued but absolutely necessary as a stakeholder and user of facilities management services in these hospitals.

The following working definitions are provided for your ready reference:

Facilities management outsourcing: is the contracting out of all or part of facilities management services in the hospital to an external provider for a fee over a given period of time. ***Facilities management services***: are the support services that support the core or primary activities of a hospital. Such include repairs and maintenance, cleaning, security services and others (See section C of Questionnaire). ***Client:*** is the institution (hospital for example) that obtains services from an external service provider while ***Vendor:*** is the external service provider or organisation that carries out the services.

We would therefore appreciate if you could spare 30 minutes of your time to answer the questions in the questionnaire. Be assured that precautions have been put in place to protect your privacy and anonymity.

If you desire to have a copy of the outcome of this research, please indicate your email address at the personal characteristics section (A) of the questionnaire. We will be glad to provide you with one after the data collection and analysis are completed.

Thanks in anticipation.

Yours Sincerely,

Dubem I. Ikediashi **Prof Stephen Ogunlana**

Doctoral degree candidate Main supervisor

SURVEY ON OUTSOURCING RISKS IN NIGERIA'S PUBLIC HOSPITALS

(April, 2013)

SECTION A: PERSONAL CHARACTERISTICS

PC01. Please indicate your present position in the hospital.....

PC02. My professional affiliation is (Please insert).....

PC03. Academic Qualification: A. HND [ ] B. BSc [ ] C. MSc/MBBS [ ] D. PhD [ ] E. FMCPH/FWCS F. Other (Please specify).....

PC04. Number of years in service: A. 1-5 years [ ] B. 6-10 years [ ] C.11-20 years [ ] D. 21-30 years [ ] E. Above 30 years [ ] F. Not Applicable [ ]

PC05. Have you ever benefited from outsourced facilities management services in this hospital?

A. Yes [ ] B. No [ ]

PC06. Email address (Optional).....

SECTION B: IDENTIFICATION OF RISK FACTORS ASSOCIATED WITH OUTSOURCING OF SERVICES IN PUBLIC HOSPITALS

7. Outsourcing risk factors are the likely undesirable outcomes and consequences that may be associated with outsourcing of facilities management services in the hospital. Please indicate by ticking **(√)** as appropriate your assessment of the probability of occurrence and severity impact of the identified risks using the following scales:

Probability of occurrence scale:

Highly likely	Likely	Somehow likely	Slightly likely	Not likely
5	4	3	2	1

Severity Impact scale:

Highly severe	Severe	Substantial	Marginal	Negligible
5	4	3	2	1

Code.	Outsourcing Risk factors	Probability of Occurrence					Severity Impact				
		5	4	3	2	1	5	4	3	2	1
Client Related Factors											
RF01	Conflict of interest between client and vendor										
RF02	Inadequate planning of outsourcing policies										
RF03	Possible loss of control by client										
RF04	Excessive monitoring of performance										
RF05	Loss of core knowledge by client										
RF06	Fall in morale of employees										
RF07	Loss of internal coherence										
RF08	Selective discrimination of vendors by clients										
RF09	Loss of organisational competence										
RF10	Possibility of weak management										
RF11	High management overhead										
Outsourcing Contract Related Factors											
RF12	Inadequacy of standard form of contract										
RF13	Inadequate definition of scope and content of services										
RF14	Poor system for rewarding performance										
RF15	Absence of benchmark for quality										
RF16	Confidentiality leaks										
RF17	Unfavourable contract terms										
RF18	Lack of trust										
RF19	High level of business uncertainties										
Vendor Related Factors											
RF20	Vendor locked up in long term agreement										
RF21	Vendor opportunism										

RF22	Financial failure of vendor										
RF23	Poor quality of services by vendor										
RF24	Improper invoicing by vendor										
RF25	Inadequate staffing by vendor										
RF26	Possibility of fraud by vendor										
RF27	Inexperience and lack of requisite skill										
Political Factors											
RF28	Loss of intellectual rights										
RF29	Political instability										
RF30	Confiscation of vendors' properties by government										
General Factors											
RF31	Interruption to supply of services										
RF32	Natural disasters										
RF33	Cultural rejection										
RF34	Security concerns										
RF35	Legal logjam										
RF36	**Overall outsourcing risk**										

SECTION C: USER SATISFACTION WITH QUALITY OF OUTSOURCED SERVICES IN PUBLIC HOSPITALS

Please indicate your level of satisfaction with quality of service rendered by outsourcing vendors using a 7- point Likert scale: **1 = very dissatisfied 2= dissatisfied 3= slightly dissatisfied 4 = neutral 5 = slightly satisfied 6 = satisfied 7 = very satisfied.**

Code	**Facilities management services**	**Level of satisfaction**						
		1	**2**	**3**	**4**	**5**	**6**	**7**
PMS - Plant maintenance services and their personnel								
PMS01	Attitude and courtesy of personnel							

PMS02	Reliability(dependable and accurate service)							
PMS03	Responsiveness (provision of prompt service)							
PMS04	Competence(possession of requisite skill)							
LMS - Landscaping maintenance services and their personnel								
LMS05	Attitude and courtesy of personnel							
LMS06	Reliability(dependable and accurate service)							
LMS07	Responsiveness (provision of prompt service)							
LMS08	Competence(possession of requisite skill)							
LMS09	Trimming of flowers and trees in premises							
CS - Cleaning services and their personnel								
CS10	Attitude and courtesy of personnel							
CS11	Reliability(dependable and accurate service)							
CS12	Responsiveness (provision of prompt service)							
CS13	Competence(possession of requisite skill)							
CS14	Refuse collection arrangements							
SS - Security services and their personnel								
SS15	Attitude and courtesy of personnel							
SS16	Reliability(dependable and accurate service)							
SS17	Responsiveness (provision of prompt service)							
SS18	Competence(possession of requisite skill)							
SS19	Instilling security consciousness							
WES - Waste & environment mgt services and their personnel								
WES20	Attitude and courtesy of personnel							
WES21	Reliability(dependable and accurate service)							
WES22	Responsiveness (provision of prompt service)							
WES23	Competence(possession of requisite skill)							
CTS - Catering services and their personnel								
CTS24	Attitude and courtesy of personnel							
CTS25	Reliability(dependable and accurate service)							

CTS26	Responsiveness (provision of prompt service)							
CTS27	Competence(possession of requisite skill)							
SL01	**Overall satisfaction**							

Thank you very much for taking your very precious time to complete this questionnaire survey

Appendix C: Interview protocol I (Client)

CASE STUDY PROTOCOL FOR INTERVIEW SECTION

1.0 Introduction

This interview section is part of an on-going research on ***outsourcing of facilities management services in Nigeria's public hospitals***. It is aimed at developing a model for outsourcing non-core services in the hospitals as part of measures targeted at adding value to the management of resources in the nation's public hospitals.

The following working definitions are provided for your ready reference:

Facilities management outsourcing: is the contracting out of all or part of facilities management services in the hospital to an external provider for a fee over a given period of time. ***Facilities management services***: are the services that support the core or primary activities of a hospital. Such include repairs and maintenance, cleaning, security services and others (See section E of Questionnaire). ***Client:*** is the institution (hospital for example) that obtains services from an external service provider while ***Vendor*** is the external service provider or organisation that carries out the services

I will therefore appreciate if you could spare about **30 minutes** of your time to share your valuable knowledge and experience through a one-to-one interview to be guided by this protocol.

Be assured that your participation is highly valued and absolutely necessary while precautions have been put in place to protect your privacy and anonymity.

If you desire to have a copy of the outcome of this research, we will be glad to provide you with one after the data collection and analysis are completed.

Thanking in anticipation.

Yours Sincerely,

Dubem I. Ikediashi
Doctorate degree Candidate

Prof Stephen Ogunlana
Main Supervisor

2.0 General State of Affairs in the case study entity

1. What is the number of beds in this hospital
2. How many patients are currently registered in this hospital
3. What is your position in this hospital
4. What is your professional affiliation
5. How many years of experience do you have

3.0 Outsourcing practice in the case study entity

1. Do you have any policy in place for outsourcing in this hospital
2. How many service providers do the hospital use for outsourcing of FM services
3. What kind of contracting arrangement do you have with your vendors
   i. Total facilities management
   ii. Managing contractor
   iii. Managing agent
   iv. Private finance initiative
   v. Fixed-term contract

4. What do you think are the factors that motivate the hospital to outsource FM services? Please rate them using the scale of 1 = Not influential to 5 = Highly influential; from the view point of
   i. Cost
   ii. Strategy
   iii. Innovation
   iv. Quality of service
   v. Time
   vi. Corporate social responsibilities (CSR)

5. In your own view, please rate the criticality of the following risk categories using the scale of 1=not critical, 2=somehow critical, 3=moderate 4=critical, and 5=very critical.
   1. Client risks
   2. Outsourcing contract risks
   3. Vendor risks
   4. Political risks
   5. General risks

4.0 Facilities management services in the case study entity

Among the list of 27 FM services provided, please tick those currently being outsourced in your hospital and rate the quality of outsourced services using the scale of 1 = highly unsatisfactory 2 = unsatisfactory 3 = moderate 4 = satisfactory and 5 = highly satisfactory. Comment on your answers where possible.

Thank you for sparing your time despite the very tight schedule of your job.

Appendix D: Interview protocol II (Vendor)

CASE STUDY PROTOCOL FOR INTERVIEW SECTION

1.0 Introduction

This interview section is part of an on-going research on ***outsourcing of facilities management services in Nigeria's public hospitals***. It is aimed at developing a model for outsourcing non-core services in the hospitals as part of measures targeted at adding value to the management of resources in the nation's public hospitals.

The following working definitions are provided for your ready reference:

Facilities management outsourcing: is the contracting out of all or part of facilities management services in the hospital to an external provider for a fee over a given period of time. ***Facilities management services***: are the services that support the core or primary activities of a hospital. Such include repairs and maintenance, cleaning, security services and others (See section E of Questionnaire). ***Client:*** is the institution (hospital for example) that obtains services from an external service provider while ***Vendor*** is the external service provider or organisation that carries out the services.

I will therefore appreciate if you could spare about **30 minutes** of your time to share your valuable knowledge and experience through a one-to-one interview to be guided by this protocol.Be assured that your participation is highly valued and absolutely necessary while precautions have been put in place to protect your privacy and anonymity. If you desire to have a copy of the outcome of this research, we will be glad to provide you with one after the data collection and analysis are completed.

Thanking in anticipation.

Yours Sincerely,

Dubem I. Ikediashi **Prof Stephen Ogunlana**

2.0 General State of Affairs in the case study entity

6. What is your position in your organisation
7. What is your professional affiliation
8. How many years of experience do you have

3.0 Outsourcing practice in the case study entity

6. What is your opinion on outsourcing policy frameworks in public hospitals
7. What do you think are the factors that influence public hospitals to outsource FM services? Please rate them using the scale of 1 = Not influential to 5 = Highly influential; from the view point of

vii. Cost
viii. Strategy
ix. Innovation
x. Quality of service
xi. Time
xii. Corporate social responsibilities (CSR)

8. In your own view, please rate the criticality of the following risk categories using the scale of 1=not critical, 2=somehow critical, 3=moderate 4=critical, and 5=very critical.
   6. Client risks
   7. Outsourcing contract risks
   8. Vendor risks
   9. Political risks
   10. General risks

4.0 Facilities management services in the case study entity

Among the list of 27 FM services provided, which of them do you think are the most outsourced in public hospitals and rate the quality of outsourced services using the scale of 1 = highly unsatisfactory 2 = unsatisfactory 3 = moderate 4 = satisfactory and 5 = highly satisfactory. Comment on your answers where possible.

Thank you for sparing your time despite the very tight schedule of your job.

Appendix E: Consent letter for framework validation

LETTER OF CONSENT FOR PARTICIPATION IN FRAMEWORK VALIDATION

This is to affirm my consent in the validation process for the doctoral research conducted by **Dubem Isaac Ikediashi** of the School of the Built Environment, Heriot Watt University. I have been given a summary of the developed framework as well as the accompanying procedural steps.

As a stakeholder in the FM industry, I may be asked to provide useful and additional information not contained in the questionnaire. I may however decline to do so and choose to withdraw my consent prior to filling the questionnaire if I deem so.

As a participant in the validation process, I am aware that:

- All information and data supplied will be treated confidentially
- My identity will be protected and anonymity maintained
- My participation is voluntary and may be withdrawn at any time

Signed..... Participant

Date.....

Signature..... Researcher

Date.....

For more enquiries, please contact:

Dubem Isaac Ikediashi
3.03 William Arrol Building
School of the Built Environment
Heriot Watt University,
Edinburgh
Telephone: +44 131 451 8367
Email: dii1@hw.ac.uk; isaacikediashi@yahoo.com

Appendix F: Framework validation Questionnaire

August 05, 2013

Dear participant,

Please find attached a copy of the developed framework showing the logical connections between phases of the framework and the sub activities.

I will appreciate if you could spare about 25 minutes of your time to share your valuable knowledge and experience by providing your assessment of the framework.

Be assured that your participation is highly valued and absolutely necessary while precautions have been put in place to protect your privacy and anonymity. In line with this, all personal information provided will be fairly and lawfully analysed, confidential and processed in line with your rights.

Thanking in anticipation.

Yours Sincerely,

Dubem I. Ikediashi **Prof Stephen Ogunlana**
Doctorate degree Candidate Main Supervisor)

Personal information

1. Please state your position in your organisation
    1. Facilities manager
    2. Head of facilities
    3. Head of works
    4. Director of physical planning
2. Type of organisation
    .....
3. Name of organisation
    .....
4. Years of experience with FM
    1. 0 – 10

2. 10 – 20
3. 20 – 30
4. > 30

Framework validation

5. Please indicate your overall assessment of the outsourcing framework using the scale of 1 = poor; 2 = below average; 3 = moderate; 4 = above average; and 5 = excellent

ATTRIBUTES	**1**	**2**	**3**	**4**	**5**
Logical structure					
Clarity and intelligibility					
Comprehensiveness					
Practicability					
Efficiency					
Applicability					

6. Please identify potential limitations/weaknesses observed in the framework
   .....
   .....
   .....
7. Please identify possible areas of strengths and opportunities in the framework
   .....
   .....
   .....
8. Kindly provide any other suggestion(s) that may further improve the quality of the outsourcing framework.
   .....
   .....
   .....

Thank you for your participation in the validation process!

Appendix G: Sample of service level agreement (SLA)

University of Uyo Teaching Hospital – Facilities Management Unit

Service Level Agreement (SLA)

For provision of cleaning services

Between

Dubem Facilities Limited (DFL)

And

University of Uyo Teaching Hospital, Uyo (UUTH)

Client: UUTH	Service provider: DFL
Representative: Head of facilities	Representative: Daniel Ikediashi
Signature:	Signature:
Date:	Date:

Period of coverage:

Review date:

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1. **Executive summary**

This service level agreement provides a mechanism for the on-going mutual relationship between the client, **University of Uyo Teaching Hospital (UUTH)** and its service provider (SP), **Dubem Facilities Limited (DFL)** and evolved from an in-depth examination of service needs of the hospital with respect to the provision of **cleaning services**.

The purpose of this agreement therefore is to articulate and understand agreed levels of cleaning services, how they will be monitored, evaluated, measured and managed. Measurement of levels of service delivery will be based on standards and measures outlined in this document

2. **Service level details**

The SP shall provide services in the following broad areas and ensure that each block or area of the hospital is cleaned to a standard level of specification as detailed below:

Broad area	**Description of task**	**Frequency**
Offices	Vacuum clean soft floors Mop hard floors Empty waste bins Spot clean doors and walls Damp wipe furniture and fittings	daily
Wards (men, women, and children)	Vacuum clean soft floors Mop hard floors Empty waste bins Spot clean doors and walls Damp wipe furniture and fittings	daily
Washroom and toilets	Vacuum clean soft floors Mop hard floors Empty waste bins	daily

	Spot clean doors and walls Damp wipe furniture and fittings Replenish consumables Damp wipe mirrors, hard dryers, and polish with dry cloth	
Stairs and corridors	Remove debris	daily
	Vacuum clean carpets and soft floors Mop hard floors Spot clean doors and walls Damp wipe furniture and fittings, Ledges, stair rails and banisters	
Laboratories	Vacuum clean soft floors	daily
	Machine mop and buff hard floors Empty waste bins Wash hand sinks Spot clean doors and walls Damp wipe furniture and fittings, work benches, surrounds, and storage areas	
Restricted areas	services for delivery theatres, surgery rooms, and other restricted areas to be agreed with the hospital representative	daily

Note: Female staff must only work in the female wards while male staff should work in male wards. This is however only applicable to male and female wards.

3. Service standards

The expected performance standards (key performance indicators) after cleaning should be:

For offices, wards, stairs and corridors, laboratories and other restricted areas as may be specified by the client:

1. All surfaces should be free from dust and debris
2. All the fixtures and fittings in the hospital buildings should be free from dust and debris up to the maximum cleaning height.
3. All floors should be well polished dry and also free from dust and debris
4. All waste bins must be empty

For washrooms and toilets:

1. All surfaces and walls should be free from dust and debris
2. All the fixtures and fittings in the hospital buildings should be free from dust and debris up to the maximum cleaning height.
3. Mirrors should be clean and free of smear all times.
4. All floors should be well polished dry and also free from dust and debris
5. All toilet rolls where fitted should be checked and replaced where necessary
6. Consumables should be regularly replenished
7. All sanitary fittings should be free of grime and dust

Note: all cleaning staff must put on sterilised clothes while working in the surgery and delivery theatres; while all forms of office files, electronic gadgets and medical equipment must not be removed or adjusted whilst cleaning unless prior permission has been obtained.

4. **Roles and responsibilities**

4.1 DFL

In order to meet required standard of service compliance, the cleaning staff must:

1. Be courteous and polite to all official users of the hospital facilities including staff, patients and visitors
2. Be visibly identified at all times when on duty
3. Be neat and suitably attired when on duty
4. Be properly trained to possess the requisite skill and expertise to match the job

4.2 UUTH

The hospital as the client should be able to:

1. Timely, proactive and complete information about necessary changes from the hospital, problems relating to vulnerabilities, hazardous and delicate material storage and any other unusual activity that would require vendor to take extra caution such as health and safety details.
2. Complete and thorough details of its infrastructure architecture including maintenance profile especially in areas where vendor services are involved.
3. Guarantee for continuous flow of cash payment for work done.

5. Data requirements

All forms of data relating to activities in the hospital premises must be kept and updated on regular basis. The information must be precise, definitive, strictly confidential and secure, and be readily accessible to hospital management.

Key information must be kept in duplicate in both electronic and hard copies; kept safe and available away from site to give room for continued service should there be incidence of unforeseen circumstance such as fire outbreak that could lead to information loss.

6. Period of service availability

The core hours for cleaning services shall be 5am to 9am Monday to Sunday. However, regular daytime services should be carried out in buildings, corridors and stairs with high volume of traffic during the daytime.

7. Feedback and monitoring

There should be regular audit of work by supervisors and hospital's facilities manager. The audit findings are to be recorded and where necessary captured in photographs for possible discussion at site meetings.

Monthly meetings are to be convened by the hospital's facilities manager where issues and findings of the audit shall be sorted out. Monthly evaluation of service through feedback from staff, patients and visitors shall also be discussed during the meetings.

8. Contact details

The following shall be contact details for all that are involved in the outsourcing contract.

1. Facilities manager 080*******
2. Supervisor (ward one and general offices) 070*******
3. Supervisor (ward two) 020*******
4. Supervisor (ward three) 040*******
5. Emergency helpline 030*******

Appendix H: AMOS output for hypothesized CFA model (First trial)

Hypothesized path	Estimate	S.E	C.R	P
	Regression weights			
CTS27 <--- CTS	1.000			
CTS26 <--- CTS	1.192	.254	4.700	***
CTS25<--- CTS	1.471	.294	5.002	***
CTS24<--- CTS	1.756	.344	5.099	***
PMS03<--- PMS	1.000			
PMS04<--- PMS	.991	.198	5.000	***
PMS01<--- PMS	.944	.181	5.214	***
PMS02<--- PMS	.992	.188	5.289	***
WES23<--- WES	1.000			
WES20<--- WES	.693	.178	3.889	***
WES21<--- WES	.910	.217	4.185	***
WES22<--- WES	1.185	.278	4.257	***
SS19<--- SS	1.000			
SS16<--- SS	.895	.308	2.901	.004
SS18<--- SS	1.194	.389	3.072	.002
SS15<--- SS	1.055	.345	3.059	.002
LMS05<--- LMS	1.000			
LMS08<--- LMS	1.088	.347	3.134	.002
LMS06<--- LMS	1.588	.434	3.655	***
LMS09<--- LMS	.896	.302	2.965	.003
LMS07<--- LMS	1.431	.396	3.608	***
CS13<--- CS	1.000			
CS12<--- CS	1.136	.557	2.038	.042
CS14<--- CS	1.844	.828	2.227	.026
CS11<--- CS	2.011	.898	2.240	.025
SAT01 <---OVERSAT	1.000			
CTS <--- OVERSAT	1.154	.358	3.005	***
PMS <--- OVERSAT	.937	.544	2.149	.046
WES <--- OVERSAT	1.255	.889	1.235	.007
SS <--- OVERSAT	1.568	.994	2.937	.003
LMS <--- OVERSAT	1.222	.894	1.339	.029
CS <--- OVERSAT				
	Covariances			

CTS <--> PMS	.005	.115	7.298	.766
CTS <--> WES	.050	.121	2.419	.016
CTS <--> SS	.026	.114	-4.834	.067
CTS <--> LMS	.016	.082	1.384	.166
CTS <--> CS	.019	.091	-5.696	.090
PMS <--> WES	.054	.124	7.262	.024
PMS <--> SS	.013	.116	-8.803	.422
PMS <--> LMS	.018	.214	2.304	.192
PMS <--> CS	.003	.210	5.291	.771
WES <--> SS	.014	.097	-4.818	.414
WES <--> LMS	.026	.116	5.596	.110
WES <--> CS	.010	.112	-4.821	.411
SS <--> LMS	.004	.211	3.412	.681
SS <--> CS	.021	.212	4.724	.085
LMS <--> CS	.004	.097	-.540	.589
OVERSAT <--> CTS	.032	.114	2.367	.369
OVERSAT<--> PMS	.042	.211	3.443	.228
OVERSAT<--> WES	.033	.144	-4.243	.335
OVERSAT<--> SS	.066	.243	4.871	.455
OVERSAT<--> LMS	.044	.356	3.227	.642
OVERSAT <--> CS	.058	.219	-4.591	.544

Variances

CTS	.131	.146	2.839	.005
PMS	.187	.155	3.406	***
WES	.196	.173	2.696	.007
SS	.087	.242	2.069	.039
LMS	.079	.135	2.258	.024
CS	.035	.126	1.354	.176
OVERSAT	.044	.138	1.228	.117
e1	.551	.259	9.311	***
e2	.429	.150	8.546	***
e3	.396	.094	7.322	***
e4	.290	.158	4.988	***
e5	.441	.095	8.095	***
e6	.430	.153	4.078	***
e7	.293	.140	7.359	***
e8	.276	.098	6.867	***
e9	.726	.185	8.515	***
e10	.347	.141	8.506	***
e11	.369	.150	7.422	***
e12	.484	.173	6.637	***

e13	.444	.253	8.331	***
e14	.359	.243	8.349	***
e15	.399	.095	7.220	***
e16	.330	.145	7.388	***
e17	.410	.146	8.834	***
e18	.562	.092	9.021	***
e19	.353	.157	6.180	***
e20	.478	.072	9.259	***
e21	.408	.086	7.318	***
e22	.420	.095	9.236	***
e23	.395	.045	8.877	***
e24	.498	.168	7.362	***
e25	.404	.166	6.116	***
e26	.442	.191	6.829	***

Appendix I: AMOS output for hypothesized CFA model (Second trial)

Hypothesized path	Estimate	S.E	C.R	P
	Regression weights			
CTS27 <--- CTS	1.000			
CTS26 <--- CTS	1.188	.253	4.701	***
CTS25<--- CTS	1.467	.293	5.006	***
CTS24<--- CTS	1.755	.344	5.101	***
PMS03<--- PMS	1.000			
PMS04<--- PMS	.982	.199	4.941	***
PMS01<--- PMS	.962	.184	5.215	***
PMS02<--- PMS	1.007	.191	5.277	***
WES23<--- WES	1.000			
WES20<--- WES	.692	.178	3.892	***
WES21<--- WES	.908	.217	4.187	***
WES22<--- WES	1.183	.278	4.260	***
SS19<--- SS	1.000			
SS16<--- SS	.886	.305	2.906	.004
SS18<--- SS	1.187	.385	3.080	.002
SS15<--- SS	1.037	.339	3.061	.002
LMS08<--- LMS	1.000			
LMS06<--- LMS	1.540	.471	3.271	.001
LMS09<--- LMS	.747	.279	2.677	.007
LMS07<--- LMS	1.339	.397	3.369	***
CS13<--- CS	1.000			
CS12<--- CS	1.209	.600	2.014	.044
CS14<--- CS	1.912	.880	2.173	.030
CS11<--- CS	2.116	.969	2.184	.029
CTS <--- OVERSAT	1.000			
PMS <--- OVERSAT	1.228	.337	4.115	.028
WES <--- OVERSAT	1.414	.824	3.254	.009
SS <--- OVERSAT	.997	.986	2.553	***
LMS <--- OVERSAT	1.194	.582	3.115	.027
CS <--- OVERSAT	1.593	.688	5.227	.160
	Covariances			
CTS <--> PMS	.005	.115	7.298	.766
CTS <--> WES	.050	.121	2.420	.016

CTS <--> SS	.027	.114	2.841	.066
CTS <--> LMS	.012	.082	1.985	.338
CTS <--> CS	.018	.091	-5.659	.097
PMS <--> WES	.054	.124	7.249	.024
PMS <--> SS	.013	.116	8.803	.422
PMS <--> LMS	.010	.115	2.695	.487
PMS <--> CS	.003	.210	5.281	.779
WES <--> SS	.014	.097	4.827	.408
WES <--> LMS	.026	.118	5.461	.144
WES <--> CS	.009	.111	4.796	.426
SS <--> LMS	.005	.212	3.441	.659
SS <--> CS	.020	.212	4.698	.089
LMS <--> CS	.002	.098	.615	.829
OVERSAT <--> CTS	.024	.118	4.221	.774
OVERSAT<--> PMS	.006	.211	3.112	.824
OVERSAT<--> WES	.036	.119	2.778	.666

Variances

CTS	.131	.046	2.843	.004
PMS	.185	.055	3.379	***
WES	.197	.073	2.699	.007
SS	.088	.042	2.083	.037
LMS	.094	.045	2.070	.038
CS	.032	.025	1.305	.192
OVERSAT	.075	.087	2.054	.119
e1	.551	.059	9.305	***
e2	.430	.050	8.548	***
e3	.397	.054	7.323	***
e4	.289	.058	4.950	***
e5	.444	.055	8.136	***
e6	.436	.053	8.173	***
e7	.289	.058	4.950	***
e8	.273	.040	6.776	***
e9	.725	.085	8.510	***
e10	.346	.041	8.505	***
e11	.370	.050	7.432	***
e12	.484	.073	6.639	***
e13	.443	.053	8.288	***
e14	.359	.043	8.350	***
e15	.399	.055	7.195	***
e16	.332	.045	7.443	***

e18	.562	.063	8.889	***
e19	.329	.069	4.793	***
e20	.489	.052	9.367	***
e21	.401	.061	6.544	***
e22	.422	.045	9.316	***
e23	.393	.045	8.810	***
e24	.499	.068	7.381	***
e25	.400	.067	5.999	***
e26	.422	.181	5.528	***