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FACILITY MANAGEMENT AT THE CIVIL AVIATION AUTHORITY OF ZIMBABWE

BY

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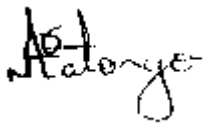
Abstract

The Civil Aviation Authority of Zimbabwe (CAAZ) manages the country's aviation facilities, which are a key enabler to international air transportation. CAAZ is the custodian of all the country's eight airports. Facilities offered at these airports include aircraft refuelling, repairs and maintenance, air navigation, passenger and cargo handling services as well. Central to this is giving assurance on the safety and security of all aviation related facilities in the country whether publicly or privately operated. Aviation is mainly about facilitation. It appears obvious that there is an inextricable link between facilities and achievement of the goals since the industry is deep rooted in facilities. It is rather unwelcomed that the Civil Aviation Authority of Zimbabwe seems oblivious to that link. This study sought to identify the critical drivers and consequences of poor facility management at the Civil Aviation Authority of Zimbabwe, a state-owned entity. Studies reveal that state-owned entities rank high in poor facility management. There are derelict cascades of public institutions which used to stand proud but are now dysfunctional as a result of this mismanagement. This dissertation employed case study as a research design with both quantitative and qualitative research methodologies but biased towards the latter. Purposive sampling was used to select the most informed respondents. The resultant sample was 158. Funding was largely to be blamed for the poor facility management. Other issues raised included inadequate knowledge on the subject matter in relation to corporate strategy on the part of the decision makers, lack of performance management systems of the actual facilities for informed decisions and late or little involvement of stakeholders especially in infrastructure development projects. Again these were indicators of funding challenges. Literature reviewed emphasised on the importance of having qualified and experienced facility managers who would direct the works of this pertinent but often overlooked function facility management. The study revealed that consequences of poor facility management include poor service delivery and thereby unsatisfied customers, financial erosion of institutions, malfunctioning and abandonment of buildings. To annihilate poor facility management, the study recommended to the major stakeholder the government privatisation not only for capital but also for expertise. The government could also introduce facility management in tertiary institutions so as to develop the area and increase knowledge. For in knowledge there is power. To CAAZ, adoption of a framework, supporting structure and inclusivity of facility management in strategy and financial planning were recommended.

Key words: Airport, Facility Management, Aviation and Airport Facility Management

Declaration Page

I declare that this dissertation is my original work except where sources have been cited and acknowledged. The work has never been submitted, nor will it ever be submitted to another university for the award of a degree.



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No one is born a star! A lot of patience and nurturing is required to make great men and great women. In Shona, it is said, *"Nzombe huru yakabva mukurerwa."*

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Dedication

Through the long hours away from home, the sleepless nights, the cold meals, the crying babies you stood by me! You were my strength, my fortress …you believed in me when I did not believe in myself. Thank you for being the man that you are! You help me to touch my dreams.

To God I give all the glory! He gave me an understanding husband, surrounded me with right people at the right time and supplied all my needs during this program. To this day he continues to sustain me. May your face always shine bright upon my family.

List of Acronyms and Abbreviations

AFM	Airport Facility Management
ACI	Airports Council International
CAAZ	Civil Aviation Authority of Zimbabwe
FM	Facility Management
HAI	Healthcare Associated Infections
KM	Knowledge Management
IFMA	International Facility Management Association
KMO	Kaiser-Meyer-Olkin
PCA	Principal Component Analysis
PM	Performance Management
SPSS	Statistics Package for Social Sciences
ZIMSTAT	Zimbabwe Statistics Agency

Definition of Key Terms

Airport:	A place where aircraft can land and take off, usually equipped with hangars, facilities for refuelling and repair accommodation for passengers.
Facility Management:	Facility management is a profession that encompasses multiple disciplines to ensure functionality, comfort, safety and efficiency of the built environment by integrating people, place, process and technology.
Airport Facilitation:	Efficient management of the flow of passengers, baggage, cargo and mail through the airport facilities, ensuring that services are delivered in a healthy, safe and secure environment, and meeting and exceeding when possible the needs and expectations of customers
Infrastructure:	The basic physical and organizational structures and facilities (e.g. buildings, roads, and power supplies) needed for the operation of a society or enterprise.

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CHAPTER 1 INTRODUCTION

1.1 Introduction

According to ISO41001:2018 facility management (FM) integrated multiple disciplines in order to have an influence on the efficiency and productivity of economies of societies, communities and organizations, as well as the manner in which individuals interacted with the built environment. Facility management affected the health, well-being and quality of life of much of the world's societies and population through the services it managed and delivered. The British Standard BS EN15221-2 defined facility management as an integrated process to support and improve the effectiveness of the primary activities of an organization by the management and delivery of agreed support services for the appropriate environment that is needed to achieve its changing objectives.

In Africa, facility management was still in its infancy and in Zimbabwe it was a new concept altogether. Though strongly routed in facilities, state-owned entities such as the National Railways of Zimbabwe, the Cold Storage Commission and the Post Office had fallen victim to ill-facility management (Mushava & Mutacha, 2016). The way the built environment and infrastructure were managed did not achieve efficiency and productivity of economies for the organisations and thus failed to support their own changing objectives (inferring from the definitions offered above). Over the past decade, the Civil Aviation Authority of Zimbabwe struggled to raise funds to maintain its infrastructure in line with international standards owing to limited financial resources (Mhlanga, 2018). Though CAAZ had not succumbed to this demise, the concept of facility management was still alien to it. This first chapter outlines the background to the study, problem statement, objectives,

research questions, significance of the study, assumptions, delimitations and limitations of the research project.

1.2 Background to Study

The Civil Aviation Authority of Zimbabwe (CAAZ) is the custodian of the eight airports within the country namely Robert G. Mugabe, Joshua M. Nkomo, Victoria Falls, Kariba, Buffalo Range, Charles Prince, Masvingo and Hwange National Park Airports. It draws its mandate from the Civil Aviation Act [Chapter 13:16] which is to promote the safe, regular and efficient use and development of aviation inside and outside Zimbabwe as well as to advise the Government of Zimbabwe on all matters relating to domestic and international aviation. It is charged with management of country's airport facilities, which are a key enabler to international air transportation.

Airport facilitation consists of the efficient management of the flow of passengers, baggage, cargo and mail through the airport facilities, ensuring that services are delivered in a healthy, safe and secure environment, meeting and exceeding when possible the needs and expectations of customers (ACI, 2016). This includes facilitation of the aircraft in and out of the airport. As such the necessary facilities must be available, serviceable, and reliable and updated timeously if the customer's needs and expectations are to be met.

The nation experienced a business downturn in the aviation industry since 1999 when the country lost approximately 50percent of air transport landings at the now Robert Mugabe International Airport leaving capacity utilisation at around

45percent (Mushava & Mutacha, 2018). According to Atkins and Brooks (2005), the facility management service should aim to accomplish the following;

a. supporting people in their work and other activities
b. enhance individual well-being
c. enable the organisation to deliver effective and responsive services
d. 'sweat' the physical assets to make them highly cost effective
e. allow for the future change in the use of space
f. provide the competitive advantage to the organisation's core business
g. enhance the organisation's culture and images

The organisation was not only losing business to competition but was also failing to 'sweat' its physical assets. It struggled to achieve most of the afore-mentioned objectives as stated by Atkin & Brooks (2000). CAAZ had not grasped facility management; it was a new concept. The organisation was yet to realise that facility management was not a one-time event but rather a process which continuously evolved with time, technology and needs.

1.3 Statement of the Problem

CAAZ required more than $400million to invest in airports facilities to keep them in line with international standards (Mhlanga, 2018). Zimbabwe has eight airports but most of them had not been upgraded in the last decade due to the unavailability of funds to implement the projects (Mhlanga, 2018). Zimbabwe's economy struggled to recover from a difficult period of high inflation and contracting investment (CAAZ, n.d.). This environment made it tough for CAAZ, an organisation of a large and diverse remit to establish sound commercial practices whilst continuing to invest in new technology and infrastructure that it needed to keep the business and

tourist sectors working smoothly which led to a gap forming in the area of infrastructure development (CAAZ, n.d.). Facility Management is considered to be an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organisation, to ensure that the built environment supports the primary objectives of the host organisation (Nutt, 2004). Airports compete in a global village. Their facilities must continuously evolve to match or surpass those of their opponents if they are to be global leaders in the industry. It is against this background that the study was carried out. Though it applied to the whole Authority, focus was put on RG Mugabe Airport as it is the biggest airport in the country. This happens to be where the researcher was based.

1.4 Aim of the Research

CAAZ shoulders an important responsibility of maintaining airport facilities as airports serve as an eye into the country. The aim of the research was therefore to investigate the facility management challenges at the Authority and possibly recommend solutions to these challenges through the research study.

1.5 Objectives of the Research

The following were the research objectives:

1. Assess the effects of skills and/or qualifications in relation to airport facility management at CAAZ.
2. Evaluate how performance management impacts the effectiveness of facilities at CAAZ.
3. Evaluate how stakeholder expectations are integrated into airport facility management.

4. Identify the major determinants of facility management at the Authority.

1.6 Research Questions

1. What are the effects of management skills and qualifications to airport facility management at CAAZ?
2. How does performance management affect the efficiency levels of facilities at CAAZ?
3. How are stakeholder expectations integrated into AFM?
4. What are the major determinants of facility management at CAAZ?

1.7 Research Assumptions

The assumptions of this research were that, the status quo of CAAZ would not change during the period of the study. Respondents and other sources of information would be accessible, individuals would co-operate to the best of their capabilities and the knowledge given was relevant for the study. Questionnaires and other research instruments would provide the necessary and relevant information.

1.8 Significance of the Research

The study would benefit other researchers, universities, trade unions, employer organization, employees and other stakeholders such as the government in various ways.

i. Academic benefit

This research would add to the body of knowledge. Learning is a process where there can never be a point when one asserts that he or she has gained all the information available under academic scrutiny on facility management. The

research would rouse other researchers to conduct investigations on a topical area of interest. Universities and other researchers would cite the study when conducting further research or as a basis of reference.

ii. Benefit to organisation

Results obtained from the study would be used to come up with suggestions and recommendations relevant and useful to the organisation. It would help in the decision making process offering information as a point of reference for justification of decisions made. The findings would lead to creation of strategies, better understanding of the area of interest and its implications to avoid actions that had no justification as well as to guide facility management at CAAZ.

iii. Employees

There were limited empirical studies done in the aviation industry within developing countries such as Zimbabwe on the topic of airport facility management hence the reason to carry out the research. Employees themselves would gain knowledge and empower themselves in order to understand what airport facility management constitutes of and what forms it can take in Zimbabwe. Most literature obtained is based upon studies done in the developed countries and the implementation of the system but not the factors that contribute to it being eventually adopted exclusively. There is need to add on to the body of knowledge in the developing countries as these countries have different environmental conditions and policies compared to the developed and transition countries in the West and East.

Cotts & Lee (1992) suggest that facility management is the cornerstone to which the organisation, its health and wellbeing of its operations rest upon. There is need for studies to be done on attempts to understand issues that are affecting airport facility management within the modern day organisation. With this in mind, the proposed research topic for the factors affecting facility management in Zimbabwe.

1.9 Limitations

i. There were time constraints. The research spanned over a period of approximately four months in which the researcher was supposed to have used all the research instruments.

ii. Permission had to be sought from the Authority, a process which the researcher had no control over. This prolonged the study as the researcher also needed confirmation from the university that the research findings would be used for academic purposes only.

iii. There were restrictions to company data therefore limiting access to primary data as a result of sensitivity of the subject matter. The researcher had to use secondary sources of data to substitute the primary sources.

iv. Given that the researcher is a full time employee, effective time management techniques had to be employed to manage the workload as the study ran concurrently with business as usual at work.

1.10 Delimitations

The study focused on airport facility management at the Civil Aviation Authority of Zimbabwe which provided scope demarcations. The organisation operates eight airport facilities in Zimbabwe. However, this research was mainly biased towards

Robert Mugabe International Airport in Harare not only because that was where the researcher was stationed but also it is the biggest airport in the country. However, the findings of the research are generalised for the whole country. Not all employees were sampled due to limited resources, and from the selected individuals not all respondents participated in this study.

1.11 Chapter Summary

This chapter elaborated on what was being studied, how the study came about, the background of the study, research questions and research objectives. It also dwelt on the significance of the study, its limitations and delimitations. The following chapter will look into the literature reviewed.

CHAPTER 2 REVIEW OF RELATED LITERATURE

2.1 Introduction

The chapter discusses literature available on facility management and how it affects airports today. It puts facility management in scope. Issues to be discussed include importance of facility management to strategy, competitiveness and sustainability. The chapter also looks at the under-lying principles as well as barriers to effective implementation of facility management. The importance of literature review within an academic research cannot be over-emphasised. The chapter ends with a summary of the literature reviewed and an introduction to chapter three.

2.1.1 Facility Management in Context

Facility Management is a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology (IFMA, 2019). The Institute of Work and Facilities Management (2019) describes facility management as the integration of multi-disciplinary activities within the built environment and the management of their impact upon people and the workplace. Alexander (1996) describes facility management as the process by which an organization ensures that its buildings, systems and services support core operations and processes as well as contribute to achieving its strategic objectives in changing conditions.

Atkin & Brooks (2000) see 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. Cotts & Lee (1992) describe facility management as an essential function affecting not only revenues and costs but production, quality of life for employees, health and safety, the work environment and increasingly, the ability to recruit and retain employees.

The case for a strong link between facility management and organisational performance was made by Duffy as far back as 1988, when management began to realise that for organisations to benefit from their enormous investment in facilities, they had to begin managing them actively and creatively with commitment and a broader vision. There are few things which stand out from the different definitions given above; people, place, processes and technology. It is evident that facility management is multi-faceted and requires integration. A one size fits all solution will not be applicable, diligent tailoring that harmonises all the components has to be considered.

From the discussions above, what stands out is that facility management is about sustainability of the business. Sustainability in organisations also popularly known as the Triple Bottom Line (TBL) is a framework coined by Elkington (1994) which recommends that companies commit to focus on social and environmental concerns just as they do on profits to ensure an organisation earns profit in a sustained way which in the long run is about viability, about a corporate's well-being. The TBL posits that instead of one bottom line, there should be three: profit, people, and the planet (Kenton, 2019). A TBL seeks to gauge a corporation's level of commitment to corporate social responsibility and its impact on the environment over time (Kenton,

2019). The idea is that a company can be managed in a way that not only earns financial profits but which also improves people's lives and the planet.

Thus an organisation which practises facility management is not only focused on profits but also on people and the environment in which it operates. It in essence is a conscious corporate citizen. "The different definitions of facility management show that it is an evolving field whose nature is still fluid", (Hamer, 1988). It is in recognition of this that Kelly, Hunter, Shen, & Yu (2000) concluded that, "facility management could mean different things to different parties, and the scope of services may vary between organisations or departments".

2.1.2 Introduction to Airport Facility Management

Airports represent a real challenge in the field of facility management because of their diverse nature and broad scope (Pitt, 2001). An airport can be described as an operational system comprising infrastructure, facilities, equipment, systems and personnel, which collectively provide a service to a customer (Vreedenburgh, 1999). The airport is a processing facility for passengers, baggage, freight and a service facility to aircraft and airlines (Vreedenburgh, 1999). Similar to facility management, airport facility management is hard to define because of its diversity. In general airport facility management can be classified into two functions aeronautical services and non-aeronautical services (Brown & Pitt, 2001). Aeronautical services are those services rendered to support air-men. These range from runways to air-traffic management and ground services. Non-aeronautical services are those that have nothing to do with flying and are even broader than aeronautical services. Concessionaires, duty free shops, car-parks, restaurants, concierge services etc. fall in that category. A fusion of great skill and knowledge in

AFM is thus needed for delivery of this airport function (Pitt, 2001). The performance of an airport is hinged upon safety, financial performance, user and customer satisfaction which are all by-products of efficient AFM (Vreedenburgh, 1999).

According to Pitt, van Werven, & Price (2011), most airports divide their functions into technical, infrastructure, commercial and space management. Vehicle maintenance, security, fire protection and any other small technical services form specialised airport systems management or technical management (Pitt, van Werven, & Price, 2011). Logistics management, parking, public transport, cleaning staff and services, medical services and workplace development form infrastructure management. They also aver that everything that has to do with third parties form commercial management. The commercial management function mainly controls relations with third parties (for example, retailers and contractors), but also performs functions such as business administration and marketing. Airport space management includes building, property and surface management. It provides a framework to support all the other Airport Facility Management activities. Table 1 below shows the simplified scope of airport facility management.

Table 2.1: Airport Facility Management Scope

FACILITY MANAGEMENT			
Hard Facilities		**Soft Facilities**	**Commercial Facilities**
Building	**Special Airport Systems**	**Support**	**Real Estate**
The Built	Fire rescue and emergency services	Portering and laundry	Leasing
Building management system	Navigation and landing aids	Janitorial services	Lease administration
Electrical installations	Ground handling	Grounds maintenance	Disposition

Water and sewer	Communication Systems	Airfield maintenance	
Heating, ventilation and air-conditioning	Airfield civil works	Catering	
Fire and detection	Security Services	Pest control	
Energy optimisation	Baggage handling systems	Auxiliary services	
Street lighting	X-rays		
Elevators and escalators	Fleet		
Renovations	Simulators		
	Radars		

2.2 Airport Facility Management Conceptual Framework

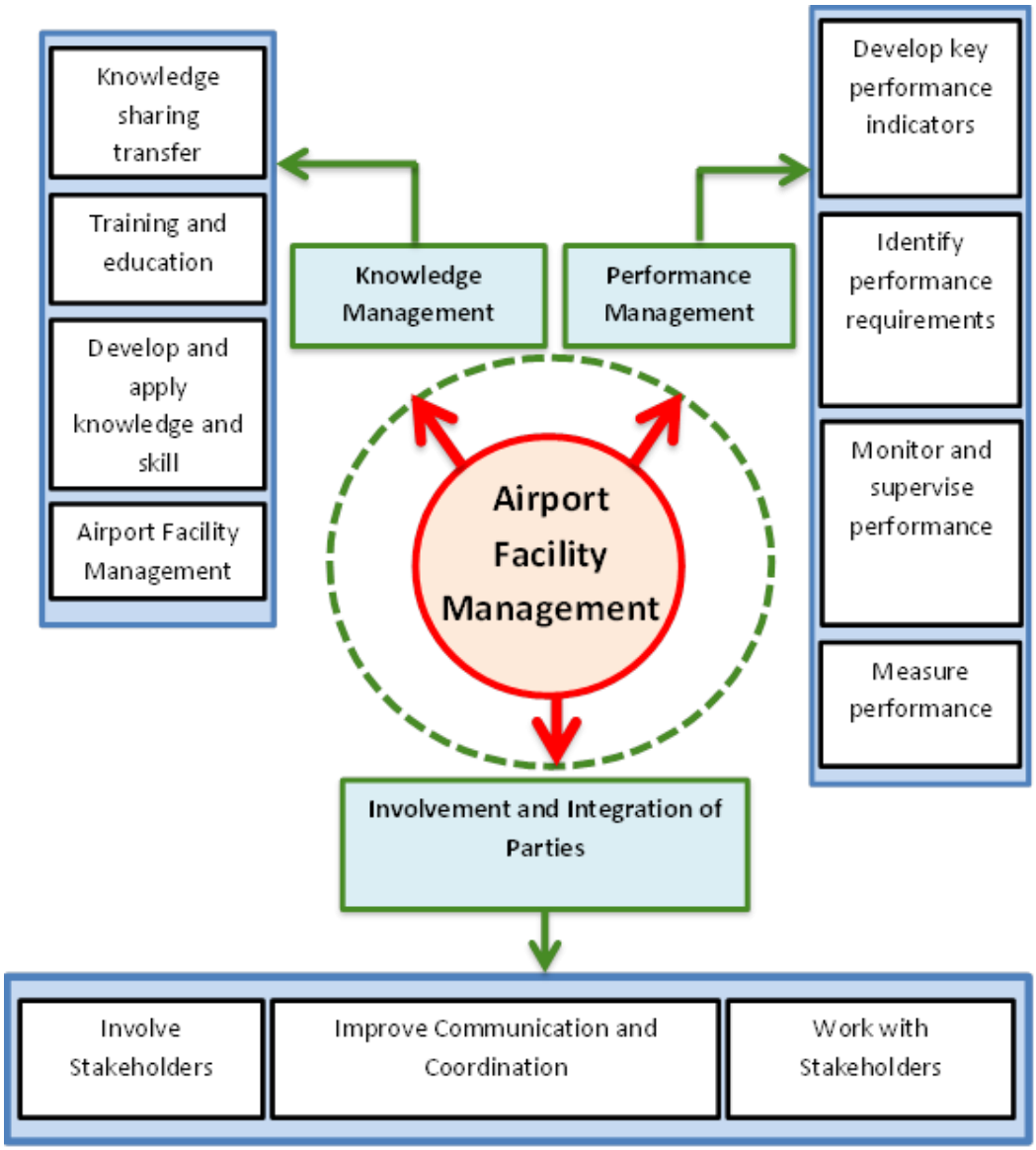
The Airport Facility Management Framework deals with under-lying principles that are often overlooked but are very salient in facility management. This conceptual framework was adapted by the researcher for AFM as it forms the footing upon which a strong foundation of facility management can be built.

The framework was originally developed for the control of healthcare associated infections (HAI) by Liyanage C.L and Egbu C.O in 2006 after recognizing that facilities management had a central role in the control of HAI (NHS Estates, 2003). Infections that did not exist before patients were admitted into health-care facilities plagued the healthcare sector. The perception then was that HAI was predominantly a clinical issue which resulted in the lack of 'integration' between clinical and FM services (Liyanage & Egbu, 2006). As a result the problem was approached in isolation which did not solve it but rather the number of health care associated infection cases increased. It was at that point when a realization was made that it was everyone's problem, facility management included. There were no clear lines of responsibilities for FM personnel nor clear lines of communications for FM services to interact with the major players in the control of HAI (e.g. infection control teams)

(Liyanage & Egbu, 2006). The issues that plagued the health sector then and are wreaking havoc in AFM are as follows:

1. Involvement and integration of stakeholders
2. Lack of knowledge in facility management
3. Lack of performance management in facility management

Figure 2.1: The Airport Facility Management Conceptual Framework



(Liyanage and Egbu, 2006, p.18)

2.2.1 Involvement and integration of stakeholders

Neil (2009) posits that stakeholder engagement is the process by which an organization involves people who may be affected by the decisions it makes or can influence the implementation of its decisions. These people could be influential in the organization or within the community, in which it operates, have the potential to support or oppose the decisions, hold relevant official positions or be affected in the long term (Neil, 2009). A stakeholder is defined as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Michel, 2012). Stakeholder involvement and integration in major projects such as terminal or airport construction tends to be inadequate. According to Upham (2003) airport stakeholders may include, passengers, airlines, government agencies (Zimbabwe Republic Police, Immigration, The President's Office, Zimbabwe Revenue Authority, Port Health etc. in the case of CAAZ), the government, service providers, NGO's and lobbyists, the general public, the business,academia, tourism sector, suppliers, the neighbouring community etc. All these parties influence decisions in airports projects and especially AFM.

Traditionally facility management was viewed as maintenance department thus it is not surprising that airport management overlook it in the design phases of projects. Facility management however is the missing link as it understands the many different facets of an organisation. It understands the relationship between process, place, people (stakeholders included) and the core business. Enoma (2005), De Silva (2011) and Jawdeh (2013) concur that pre-construction provisions which articulate stakeholder needs at the design stage hardly exist, as a result quality is compromised and rework is needed in some cases. Worst case scenario is that the facility may not

meet the stakeholders' needs at all which leads to customers moving to a different airport where their needs are satisfied. Inclusion of FM at the development phase minimizes future problems at the occupancy phase (De Silva, 2011). Facility management must link strategically, tactically and operationally to primary activities and other support services to create value (Kinciad, 1996).

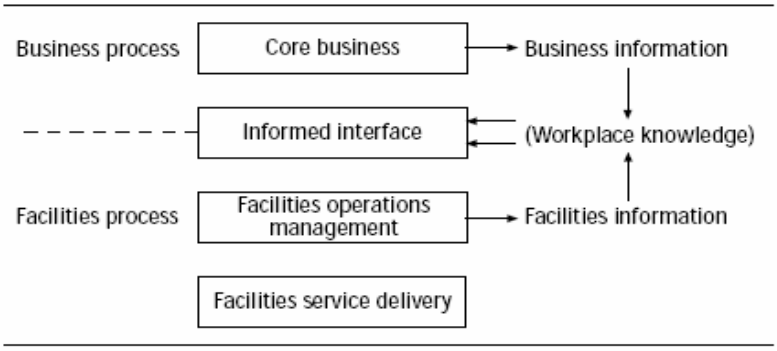
2.2.2 Knowledge Management in AFM

Amaratunga (2001) suggests that facilities managers need to value their entrepreneurial skills, knowledge of the core organisation, with the ability to pre-empt and translate the organisation's need for change into facilities strategies which underpin operational objectives to yield competitive advantage. Mclennan (2000) argues, the specific FM knowledge that has strategic value is the understanding of the relationship between the performance of the physical resources, key knowledge variables for facilities management organisational effectiveness and their impact on the customer being served by these resources. This emphasizes the underlying importance of an organisational specific knowledge management system and stresses the demand side requirements of performance knowledge which bridges between the core organisation and the workplace infrastructure, to support emerging FM roles (Amaratunga, 2001).

According to the real estates and property manager at CAAZ, in airport facility management there two types of people ones who are very knowledgeable about the business and the other who are knowledgeable about facility management thus there is need for knowledge transfer to combine these different types of knowledge to the advantage of the organization. The organisation must ensure convergence of these

different types of knowledge especially in AFM. Carder (2009) came up with the informed interface as shown below to bridge the two disciplines i.e. management of the core business and airport facility management.

Figure 2.2: The informed Interface



(Carder, 1995)

The informed interface is the convergence zone where FM operations knowledge meets with core business forming "work place knowledge". In that space everything works towards the good of the organisation. There is harmonisation of processes as opposed to the previous situation where there is competition of resources.

2.2.3. Performance Management of Airport Facilities

Facility management is one area which is difficult to measure or come up measurement metrics however Amaratunga (2001) opines that the level of performance a business attains is a function of the efficiency and effectiveness of the actions it undertakes, and thus: performance measurement can be defined as the process of quantifying the efficiency and effectiveness of an action.

"We are evolving from an era in which control was the major focus of most and evolution systems to an era in which development, commitment, and involvement...,

will be the major focus" (as cited in Stone, 1996). Martins (2000) compiled the main characteristics of performance measurement to shed more light thus performance should be:

- Congruent with competitive strategy composed of financial and non-financial performance measures
- Provide direction and support to continuous improvement activities
- Provide support to identify tendencies and progress in performance
- Facilitate understanding of cause-and-effect relationships regarding performance
- Intelligible to the majority of employees
- Cover all company's business processes
- Real time information about performance;

It is difficult to know that airport facility management has arrived at its destination when it was not defined earlier where it was going. Management thinker Peter Drucker is often quoted as saying that "you can't manage what you can't measure."

> *"Drucker means that you can't know whether or not you are successful unless success is defined and tracked. With a clearly established metric for success, you can quantify progress and adjust your process to produce the desired outcome. Without clear objectives, you're stuck in a constant state of guessing." (Grey Mackenzie, n.d.)*

2.3 Relevance of the Conceptual Framework to Study

The AFM Conceptual Framework can best explain the natural progression of the phenomenon of airport facility management (Camp, 2001). It assists the researcher in identifying and constructing her worldview on the phenomenon to be investigated

(Grant & Osanloo, 2014). The AFM Framework is built on three pillars i.e. involvement and integration of parties, performance management and knowledge management which are not standalone entities but are interrelated. The framework allows the researcher to bring out the links within the concepts, empirical research and important theories used in promoting and systemizing that knowledge (Peshkin, 1993). It is arranged in a logical structure to aid and provide a picture or visual display of how ideas in a study relate to one another (Grant & Osanloo, 2014). The business dictionary defines a framework as a broad overview, outline, or skeleton of interlinked items which supports a particular approach to a specific objective, and serves as a guide that can be modified as required by adding or deleting items.

The conceptual framework forms a skeleton in which the methods, tools, techniques, policy and models can then be added. The major advantages are that it deals with fundamental issues which make it industry independent. It is not prescriptive; it leaves models/systems, tools and techniques to the organisation since they know what is best suited to them. The major disadvantage is that it is yet to be implemented thus it is yet to be critiqued as well.

2.3.1 The Pillars of Framework Expanded

a. Knowledge Management (KM)

Knowledge management is vital in the process of improving the involvement and integration of airport facility management. Liyanage & Egbu (2006) recommend an open culture and removal of barriers in the involvement and integration of relevant stakeholders. They opine that knowledge management will provide an opportunity to achieve:

- mutual recognition and information exchange regarding objectives and planned outcomes
- improvement of skills and competences which could ultimately lead to effectiveness and efficiency of practices of employees of the organisation
- avoiding duplication of mistakes through sharing of experiences
- avoiding gaps or repetition of work through effective communication

b. Performance Management (PM)

The selection of a suitable performance management system is momentous to reflect the actual levels of performance of FM services to avoid falling into the demise of picking what is easy to measure rather than what is appropriate to measure (Liyanage & Egbu, 2006). Benchmarking is a structured and focused approach which can be used to compare current performance with past performance levels or to compare performance against other airports should be a pre-requisite of proper performance management (Liyanage & Egbu, 2006). The inclusion of PM into the conceptual framework therefore, provides an opportunity to achieve the following:

- measure progress towards achieving objectives
- promote benchmarking practices in order to compare performance with past levels of performance and among other airports
- promote service improvement through corrective actions
- developing and/ or reviewing strategies adopted
- the opportunity to assess/ evaluate the degree of application of knowledge management
- evaluate the extent of involvement and integration of different parties in

All of the above can subsequently result in improving the processes in airport management facilities (Liyanage & Egbu, 2006).

c. Stakeholder involvement and Integration

Stakeholder involvement and integration is a policy issue embedded in the other three pillars. The airport has many stakeholders which include employees, passengers, government, government agents, airlines, service providers, communities affected by airport operations, tourism sector, concessionaires etc. (Upham, 2003). Diverse stakeholders interact within an organizational network, which may be construed as a set of relationships, explicit or implicit, across both external and internal environments (Wagner, Alves, & Raposo, 2012). To achieve organizational sustainability, the organization should aim to satisfy, or preferably exceed, the wants and expectations of its stakeholders without compromising the ability of other parties to meet their needs. Deliberate effort has to be taken when crafting policies that stakeholders are integrated into them. Ineffective stakeholder management strategies have an adverse effect on stakeholder satisfaction (Jan van Ree & McLennan, 2006).

2.4 Principles of Facilities Management

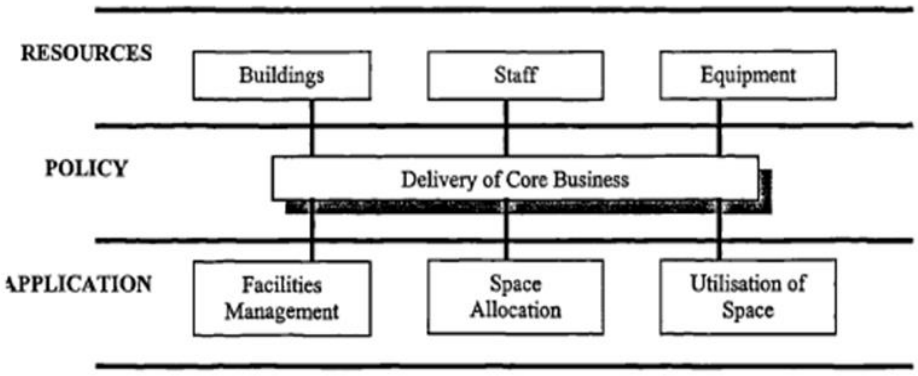
Pheng (2000) suggests that FM contains four main principles:

a. The continuous programmed co-ordination of all efforts, namely planning, designing, construction and management of facilities towards enhancing the working environment of the people and the organisation' s ability to meet its business objectives;

b. The total integration of a diverse field of disciplines of business, architecture, behavioural and engineering science under one entity in an organisation to oversee all facilities functions previously controlled by independent departments;
c. The management of activities proactively rather than the management of facilities reactively; and
d. A business concept where FM policies and procedures are guided by organisational goals and objectives as well as available resources.

Figure 1 below by Barrett (1992) shows that facility management is about harmonising processes through policies, resources, place or environment through facility management. If the organisation gets past silo mentality, delivery of core business would be efficient and thereby competitive.

Figure 2.3: Facility Management in Context



(Barrett, 1992)

Thus FM in its widest possible sense is concerned with the dynamic interaction between an organisation's personnel, process and place concurs (Laird, 1994).

2.4.1 What Airport Facility Management Seeks to Achieve

Effective facilities management focuses on corporate asset management to add value to the core business activities, provide an enabling environment for offering superior service quality in support of business operations (Alexander, 1996). Spedding & Holmes (1994) concur with Alexander (1996) that the mission of facility management is to provide an effective working environment, optimization of service quality and cost as well as maximizing and sustaining property value. They also raised the importance for the organization to create competitiveness in order to compete globally and staying proactive.

According to Connors (2003) when practiced properly the following benefits will accrue to the organisation; facility strategic plans match corporate strategic plans ensuring the use of facility management initiatives to achieve corporate objectives, space is available where needed, capital expenditure is planned and controlled and costs are minimised and sometimes avoided. Kamarazaly (2007) notes that the facility management function is responsible for managing infrastructure and facilities properly in order to achieve optimum productivity, constant quality improvement, cost reduction, risk minimization and ultimately value for money.

Jan van Ree & McLennan (2006) associate value with organizational effectiveness, efficiency and productivity. According to them value is added through improving effectiveness, efficiency and ultimately productivity in the transformation process from input to output. Hamilton (2004) posits that facility management seeks to achieve cost effectiveness, pro-activeness, integration and strategic facility management as the building blocks of value addition. He explains those elements as follows:

i. Cost effectiveness is the achievement of the best quality and service performance with required standards at the lowest reasonable cost not necessarily at the lowest cost

ii. Pro-active facility management practices are aimed at performing services in advance, thus evading possible failure, loss or interruption

iii. Integrative facility management deals with cost reduction, diminishing works redundancy and conflicts, all which can be achieved through integrative planning and coordination of facility management services

iv. Strategic facility management focuses on the organization's long term planning and clear justification of its potential business direction which will contribute to the success of facility management development

Hamilton (2004) then came up with the following objectives for facility management in order for it to achieve value addition:

- To communicate well at all levels
- To establish procedures, schedules, programs, benchmarking and feedback
- To lead and be pro-active
- To identify and provide services essential to the organization and consider contracting out/ partnering for others
- To utilize existing expertise, be able to delegate and trust staff

According to Atkin & Brooks (2000) facility management aims to accomplish the following:

- Support people in their work and other activities
- Enhance individual well being
- Enable the organization to deliver effective and responsive services

- Sweat the physical assets to make them highly cost effective
- Allow for future change in the use of space
- Provide competitive advantage to the core business of the organization
- Enhance the organisation's culture and image

Spedding and Holmes (1994) concluded that the aim of facilities management should not just be to optimize running costs of buildings but to raise the efficiency of the management of space and related assets for people and processes in order that the mission and the goals of the firm may be achieved at the best combination of efficiency and cost.

2.4.2 Typical Facility Management Job Organisation

Rivers (2012) posits that facility management is a managerial function. Facility management is considered to be an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organisation, to ensure that the built environment supports the primary objectives of the host organisation (Nutt, 2004). Wagenberg (1997) concurs with Nutt (2004) that facility management functions focus on planning and act as a coordinating unit within the firm, aiming to ensure that the function acts as the driving force behind successful operations. Kinciad (1996) identifies three distinctive characteristics of facility management:

a. Facility management must link strategically, tactically and operationally to primary activities and other support services to create value.
b. Within facility management, managers must be equipped with knowledge of facilities and management to carry out their integrated role.
c. Every item of the facility management tasks represents a category of decisions that have to be made at various management levels with skills

required to make and implement or to access their effectiveness and performance.

Then & Akhlaghi (1990) opine that facility management is classified into three distinctive groups namely strategic, tactical and operational facility management. Table 2 below shows typical executive responsibilities, management roles and project tasks in accordance with the distinct classes:

Table 2.2: Classification of Facility Management Tasks

Facility Management Class	**Executive Responsibilities**	**Management Roles**	**Project Tasks**
Strategic	Mission Statement Business plan	Investment Appraisals Real Estate Decisions Premises Strategy Facility Master Planning IT Strategy	Strategic studies Estate Utilisation Corporate Standards FM Operational Structure Corporate Brief
Operational	Corporate structure Procurement Policy	Setting Standards Planning Change Resource Management Budget Management Database Control	Guide-line Document Project Programme FM Job Description Prototypical Budgets Database Structure
Tactical	Service Delivery Quality Control	Managing Shared Facilities Building Operations Implementations Audits Emergencies	Maintenance Procurement Refurbishments Inventories Post Occupancy Audits Furniture Procurement

(Then & Akhlaghi, 1990)

The table above depicts that the need for balance between technical, managerial and business acumen is required in the strategic, tactical and operational decision making (Then and Akhlaghi, 1990). According to Rivers (2012) facility management encompasses many different roles and skills and not everyone in the facility or property management profession is responsible for all of these roles. Some are responsible for specific functions as specialists; others are responsible for everything while some oversee all these roles through other specialists (Rivers, 2012).

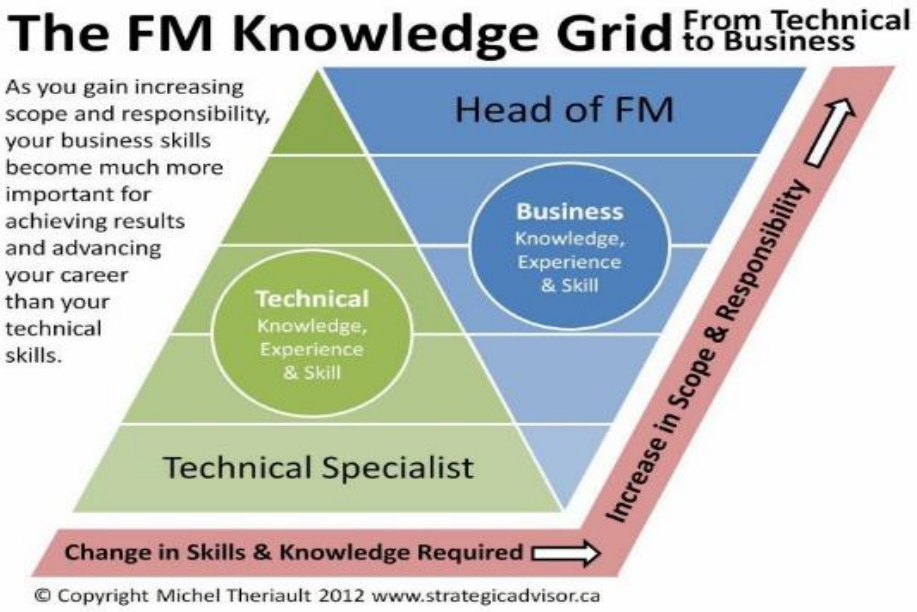
The facility management pie chart below by Michel (2011) defines the roles that fall under facility management. The spectrum is so wide that no single person can possess all these skills. Rivers (2012) posits that whilst the facility manager oversees all the roles as defined in the pie chart, wisdom would be to have other experts on the team who focus on a specific aspect of the role as some of these specific areas are actually represented by their own professions when performed as a distinct, separate role. Regardless, it's important for the facility management role to have a working knowledge of each one of these distinct areas so that one can effectively deal with colleagues, manage staff or interface with external resources (Rivers, 2012).

Figure 2.4: The Facility Management Pie Chart

(Michel, 2011)

According to Michel (2012), as one advance up the corporate ladder even though necessary, one's technical skills become less and less important as depicted in Figure 3 below. He was buttressing the point that the person in charge of FM needs to have matured in as far as business skills are concerned.

Figure 2.5: The Facility Management Knowledge Grid



(Michel, 2012)

2.4.3 The Strategic Importance of the Airport Facility Management Function

In the airline industry major airports with own connections are referred to as hubs and those with fewer connections spokes, a leap in development which took place between 1970 and 1980 (Aaltola, 2005). To gain a share in the market airports have to be strategically positioned in the market in order to attract major airlines.

According to Adler & Berechman (2001) capacity is one of the major criterion which determines airports that are likely to become the main gateways within a hub-and-spoke network. Airport facility management becomes pertinent on this strategic relationship due to its direct influence on capacity. Vreedenburgh (1999) explains that optimising service facilities can enhance capacity. If an airport is to become a major player thrust must be thrown on strategic issues, position within the hub-and-spoke system being one of them. This is affected by network activity and the role of

the government through policies regulation and deregulation. Pels, Nijkamp, & Rietveld (2003) opine that airlines are concerned with their position within the hub-and-spoke system. Synergies amongst different types of airports i.e. domestic, international with complementary facilities are formed for dominance within this system. Thus the type of facilities an airport has will play a major in determining its competitive position. Discussed below are other strategies that can be employed by airports which are all hinged on airport facility management:

a. The Development of Low Cost Airlines

At a glance this seems to be a departure from facility management in airports but according to Brown & Pitt (2001) this has been a game changer whose growth has proven to be beyond most other predictions. Low cast airlines demand significantly different levels of services from airports; value is placed on the speed of service and the low price of the ticket (Brown & Pitt, 2001). With network carriers the thrust is on high service and high quality. This differentiates the services between two such operators (Pitt, 2001). Airport facility management has to meet these different requirements. The Real Estates and Properties Managers at CAAZ agrees with them that facilities by the airport provided have to be functionally relevant otherwise an airport with high-end equipment could easily become a white elephant if the corporate strategy is not in tandem with airport facility management strategy. As solutions to this problem of differentiation of service Pitt and Brown (2001) offer a 'two airport' strategy, a 'two terminal' strategy and a 'dedicated terminal pier' strategy.

i. Two Airport Strategy

The airport fully dedicates its Airport Facility Management function to either one of the carriers, providing the simplest option to the airport. However, with this specialisation, opportunities to serve a larger market are missed. A strategic alliance may offer the opportunity for two airports to work together, while both focusing on a different carrier, as both airports would be involved in serving the two markets. (Pitt, van Werven, & Price, 2011)

ii. Two Terminal Strategy

This involves an airport operating two or more terminals, each dedicated to one type of carrier. This allows for the airport itself to serve both markets but places high demands on the Airport Facility Management function. Airport Facility Management has to offer two types of services simultaneously, which increases the complexity of the Facility Management task. Cooperating with another airport and. outsourcing the operations of one terminal to serve one type of carrier might resolve the dilemma. (Pitt, van Werven, & Price, 2011)

iii. A Dedicated Terminal Pier

This strategy uses a dedicated pier offering airports the opportunity to serve both carriers. Designing a separate pier to meet the demands for the low-fare carriers allows airports to cope with specific low-fare carrier demands. Engaging in an alliance to operate this dedicated pier offers the opportunity of specialisation. (Pitt, van Werven, & Price, 2011)

If the airport is going to be competitive the Airport Facility Management function has to possess the pre-requisite skills and should somehow be able to measure its own performance. This however is a challenge in the aviation industry in general is closed and airport facility management is untouched waters.

b. Commercial and Privatisation

It came to be known by the researcher during the study that traditionally airports were owned by the state and that they also doubled up as home-grounds to national carriers. Under such circumstances if the government struggled then naturally the airport struggled as well with ripple effects on airport facility management. This gave rise to privatisation and commercialisation of airports. Advani (1999) opines that private and second-party ownership or operation would ultimately result in airports with higher levels of customer satisfaction as the facilities would be updated to align with changing trends as opposed to on the basis of politics (a characteristic common to government owned airports and entities). At present several airport ownership possibilities exist: government-owned, private sector participation and completely privatised airports (Kesharwani, 2000). Government owned and completely privatised airports are self-explanatory. The private sector participates in the development of airport facility management through Public-Private Partnerships or through an AFM lease (Pitt, van Werven, & Price, 2011). The biggest advantage of these constructions is the professionalization and commercialisation of the AFM function (Pitt, van Werven, & Price, 2011). Airports have been revolutionised to become profit-centres as evidenced by design, layout and allocation of commercial space within airports (Freathy & O'Connel, 1999).

2.4.4 Competitive Importance of the AFM Function

One cannot speak of airport competitiveness without giving mention to the facilities. In airport facilitation competitiveness is synonymous with facilities offered. Studies at Cranfield University (2002) reveal that airports compete in six different ways which are all hinged on airport facility management.

a. Airline Services

According to Cranfield University (2002) the relevance of competition between airports is in attracting airlines. Airports sell services to airlines, which in turn sell services to passengers and freight (University of Cranfield, 2002). Pitt et al (2011) suggest that decisions by airline management to operate at specific airports largely hinge the quality of facilities at favourable at appealing costs. This affects the airline's ability to improve the service they offer. Long haul flights are more concerned with facilities offered at an airport as opposed to location (Pitt et al, 2001). Such facilities include fuelling, catering uplift facilities, janitorial, repairs and maintenance for the aircraft. Further to that facilities that allow their passengers to relax and refresh before the next leg make an airport even more attractive. Airports must continually upgrade their facilities if they are to capitalise on revenue and utilise airport facility management to their advantage.

b. Overlapping Catchment Area

AFM must increase efficiency and operate at competitive prices for short-haul and intra continental flights if they are going to be at the centre stage of competition (Pitt, van Werven, & Price, 2011).

c. Hub-And-Spoke System

Cranfield University (2002) posits that if facilities fall short of the capacity needs of airlines, by default the airlines themselves may set a secondary hub at a competing airport satisfying their requirements as the airports compete for a role as a hub airport and for transfer-traffic (University of Cranfield, 2002). Thus is it imperative that AFM meets the facility needs of airlines.

d. Residential and Urban Areas

The location of an airport is a benefit to the local area and is considered important for local development (Percoco, 2010). In the Zimbabwe setting, JM Nkomo airport became as Bulawayo was an Industrial Hub. Harare is the only city with two airports as Charles Prince was a home to the smaller equipment which belonged to the farming community that surrounded it. Opening up of airports in geographically dispersed areas is one of the ways governments can influence this competition.

e. Passenger Services

Passengers may prefer one airport over the other because of differences in services offered. It may be easily over-looked that airports offer services directly to passengers thus it becomes imperative to meet the different needs either by offering high-quality service or affordable rates depending on the strategy adopted by the airport (Pitt et al, 2011). R. G. Mugabe services mostly the international community; Charles Prince serves the leisure fliers, Victoria Falls Airport the tourists and JM Nkomo was meant for the business class. Facilities at each of the airports must be tailored to suit the different passenger which is all tied to AFM.

f. Terminal/Pier Specialisation

Competition might also exist between airport terminals especially when different companies operate terminal facilities (Brown & Pitt, 2001) bearing in mind that the building itself is a facility.

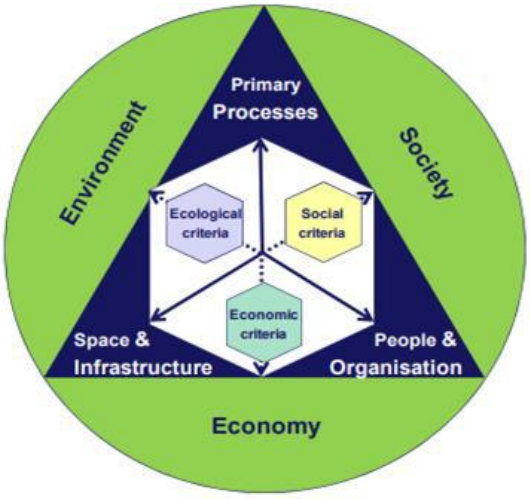
2.5 Importance of Sustainability in Facility Management

The World Commission on Environment and Development in their report, Our Common Future (WCED, 1987) defined sustainable development as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs." Nielsen, Jensen, & Jensen (2012) defined sustainable facilities management in terms of environmental performance of buildings and stressed incorporation of environmentally friendly and safe building materials and components such as low energy windows, low flush toilets, use of natural light, etcetera, during the design and construction of buildings. More often these come in hind-sight after the building has already been completed. According to Shah (2007), the primary focus for facilities managers now is to provide added value as part of the management of their property by identifying environmental costs and business opportunities but on the other hand, it has previously been observed that there is lack of skills, knowledge and tools within the Facilities Management industry to manage facilities from a sustainability perspective actively (Elmualim et al, 2012; Escrivá-Escrivá, 2011).

The main factors involved in managing sustainable facilities include management, technology applications and end-users (Zakaria, et al., 2018). The main role that the FM profession can play is by encouraging management hierarchy in the organization

and end users to understand the importance and impact of sustainable development as effective building maintenance methods will contribute to improving building performance (Zakaria et al, 2018). For example, good energy management in the building can reduce carbon dioxide emissions and at the same time preserve the environment (Escriva-Escriva, 2011). Elmualim, Valle, & Kwawu (2012) mentioned that focal point of sustainability is the integration of economic, social and environmental development as the triple bottom line for sustainable development. Junghans (2011) echoes the same and produced a basic structure of Sustainable Facility Management known as SFM-Model (Figure 4). The category includes primary processes, space and infrastructure, people and organization. The table that follows after it explains the model in detail.

Figure 2.6: Sustainable Facility Management Model



(Junghans, 2011)

Table 2.3: Dimensions and Targets of Sustainability

Dimensions of sustainability	Target
Social	• Supply of adequate buildings for work and life • Compliance with health, safety and security requirements
Environment	• Reduction of resources • Usage of recyclable building material; considering the separatability of used material for re-use; reduction of energy consumption and usage of renewable energy sources • Reduction of space requirements and soil sealing; safeguarding the ability to maintain and de-construct buildings • Preventing the usage of material causing excessive emissions
Economy	• Building space optimization for a most efficient usage • Optimization of building life-cycle costs • Facilitating the most efficient management methods

The SFM model (Junghans, 2011)

2.6 Obstacles to Effective AFM

The following factors have been identified as barriers to effective implementation of facility management in airports:

2.6.1 Managerial Complexity in AFM

Airport stakeholders include the airport itself, passengers, network carriers, government agencies and the government itself. All these have requirements and expectations that have to be coordinated and integrated by facility management. This process of aligning strategic goals results in a high level of managerial complexity (Liao, 2016). To allow for specialisation coalitions have to be created, parties to coalitions have different backgrounds and culture creating coordination problems, which in turn increase managerial complexity (Liao, 2016). Killing (1988) posits that complexity can be simplified by splitting into task and organisational

complexity which allows for analysis at a more manageable level. Further complexity arises from the fact that airport facilities are usually 24-hours and from the large number of public spaces within the same building serving different interests whilst remaining relevant (Brown & Pitt, 2001). AFM is broad and diverse which results in many functions thereby further complicating managerial complexity. The uncertainties in the environment demand competition and governments contribute to this challenge. The final factors but rather pertinent to this issue of complexity are resources and skills available within the AFM. The less the AFM skills and resources available, the more the complexity increases. Other factors affecting complexity include number of partners (the more the confusion), their roles and the level of trust.

2.6.2 Exclusion of AFM at Design Phases of Construction Projects

De Silva (2011) posits that maintainability problems at occupancy phase can be avoided by including facility management right at the inception of the design phase of the construction. The designs should speak to eco-friendliness thereby sustainability, user-friendliness, maintainability thereby reliability. Enoma (2005), De Silva (2011) and Jawdeh (2013) concur that pre-construction user requirements hardly exist. Projects then become expensive through tailoring the structures to now align them with the needs of the users which could be easily avoided if users are consulted in the design phases.

2.6.3 Late Implementation of Facility Management

Facility management in Africa in general is still in its infancy such that building automation systems are considered the closest to facility management. Facility

management is usually implemented late when deterioration has reached high levels or when the building has aged (Mustapa et al., 2008 and Nielsen et al., 2012). In the absence of airport facility management future maintenance costs may be higher as infrastructure would be in poor condition.

2.6.4 Financial Constraints

According Mustapa et al. (2008) high initial costs and lack of software development for integrated facility management are barriers to effective implementation of facility management. The cost of the building visa a vie the cost of a building management system which aids maintenance coupled with the actual maintenance costs themselves hinder progress (Ikediashi et al., 2013)

2.6.5 Lack of Professionals in the field

A study by Mustapa et al. (2008) showed that the role was being carried out by blue collar operatives who had no idea of what was expected of them. The Real Estates and Property Manager at CAAZ is of the opinion that airport facility is even more complex as airport administration is often confused with airport facility management. He goes further to say though closely related; these two functions need to work hand-in-glove with administration focusing on managing complexity and business as usual whilst airport facility management focused on serviceability, functionality and reliability of the actual infrastructure and facilities.

2.6.6 Non-existence of Laws and Standards to Measure Performance

According to a journal article entitled Effective Facilities Management for Residential Properties paper-id CASLE2016-029 the lack of relevant laws and

regulations to guide facility management practice hinders effective implementation. It further states the non-existence of standards that can be used to measure the quality and performance of both traditional and integrated FM applied by the building/property management is a major challenge in FM. The ideal situation is that standards, laws and regulations should guide its application.

2.7 Knowledge Gap

Whatever the classification it takes, knowledge has become more relevant to sustaining business performance than capital, labour or land Drucker (1993) and considered as a very crucial factor affecting an organisation's ability to remain competitive (Amit & Schoemaker, 1993). Nutt (2004) and Mclennan (2000) suggest that knowledge may be the most underutilised tool and such a knowledge perspective may supply the conceptual framework with which facilities users can understand and measure the business benefits they derive from such services. Elmualim et al. (2009) argue that an overwhelming barrier for implementing sound sustainable facility management is the lack of consensual understanding and focus of individuals and organizations about sustainability. Closing the knowledge gap would go a long way in building strategies in the transformation towards a sustainable society.

2.8 Facility Management Business Models

The role of facilities management has gradually evolved from merely helping the organisation to survive, to a platform that facility management enhances organisations potential to prosper in a volatile commercial climate (Journal of Surveying, 2013). It then follows that the challenge for facilities managers is indeed

the same challenge facing the organisation. Atkin & Brooks (2000) emphasises that these extensive facilities management functions may be successfully performed or provided either by in-house or outsourcing approach, depending on the priority of the activities or services of an organisation. According to an article from the Journal of Surveying (2013), two possible options exist in the decision to outsource or not to outsource: The organisation decides to retain or outsource the services on the whole basis, or the organisation outsources part of the services and retains certain services in-house (particularly if the facility management function is part of the organisational strategic management process).

Atkin & Bjork (2007) observed that some organisations operate what might be described as a mixed economy, retaining some services in-house whilst contracting out others. Barrett (2005) re-echoed this observation by stating that some organisations favour a totally in-house option, while others literally contract out every service possible; yet others use a combination of both. The decision should be made having regard to the path that leads to long-term value for the organisation. This is achieved by taking full account of the implications, especially the true cost of all options (Atkin & Brooks, 2009).

The decision to outsource or retain facility management in-house should be arrived at by answering a number of important questions about the organisations core competencies and policy goals, coupled with the availability of service providers, contract negotiations, and other considerations (Journal of Surveying, 2013). It should include identifying an organisation's needs, strategic interests and goals, in addition to computing all costs associated with the outsourcing process. In stressing

the importance of decision-making, Barrett & Baldry (2003) stated that the effectiveness of decisions is determined predominantly by the quality of the decision-making process used to generate it and it is usually best for top management to define the decision-making model to be adopted.

2.8.1 Full Out-Sourcing

Outsourcing is a strategic tool, and if used appropriately, it can generate significant improvements in service and cost for many organisations. When done well, it guarantees an improved understanding of the services provided and their costs. Most importantly, it allows a company to redirect time and resources to its core competency. At the same time, a well-run in-house operation could conceivably operate at 10 to 15percent less than an outside organisation, simply because it does not have to generate a profit. A sourcing decision can be made by taking into account both the scope and purpose of sourcing (Kakabadse, N. & Kakabadse, A. , 2000).

The higher the strategic importance of the facility management function to the company, the more likely the function will be performed by either an internal profit-centre or by an independent provider (Walters Gaya, 1997). Many factors may impact on an outsourcing decision and these are grouped into four categories of Strategy, Cost, Function characteristics and Environment. Strategic factors include core competencies, critical knowledge, lack of internal human resource, impact on quality and flexibility. Function characteristics include complexity, degree of integration, structure and asset specificity. Environment functions include the internal and external environment faced by the organisation (Journal of Surveying, 2013).

2.8.2 Full In-Sourcing

In contrast to outsourcing, in-house approach is essentially referred to as a service that is provided by a dedicated resource directly employed by the client organization, where monitoring and control of performance is normally conducted under the terms of conventional employer/ employee relationship; although internal service-level agreements may be employed as a regulating mechanisms (Barrett & Baldry , 2003). Several potential benefits have been associated with the in-house approach. For instance, in-house option is preferable to outsourcing where the provision of the facility management service requires building skill and knowledge for improved customer service (Kamarazaly, 2007). The decision to operate the Airport facility management function as an internally automatically turns the Facility Management function into one of the core activities, broadening the scope of the aviation organisation (Walters Gaya, 1997). Strategic importance is increased because of the level of management control needed as management must ensure that the same level of quality be delivered to the organisation itself (Ytsma, 1997). Wise (2007) lists the most significant benefits of in-house approach to include offering facility management companies the opportunity to grow people instead of hiring from outside, and as a result provide career prospects that reduce staff turnover.

From a loyalty perspective, in-house employees usually will serve the interest of the organisation better than outsourced employees, as the latter aim to serve the interests of their own employers, rather than for the organisation for which they are working by proxy (Kamarazaly, 2007). In addition, in-house option has been found to result in simultaneous improvements in the customer satisfaction, as well as employee

morale and satisfaction, which are central to improving productivity and bottom-line (Kamarazaly, 2007).

2.8.3 Hybrid

The hybrid model is also now known as Integrated Facility Management Model. Atkin (2003) observed that some organisations operate what might be described as a mixed economy, retaining some services in-house whilst contracting out others. The traditional route takes us through 'Labour Outsourcing' where all management is retained in the client's organisations and labour suppliers are used to fulfil the requirements largely on an input-based contract (Davies, 2019). The need to provide specialist systems support or to comply with the local legal and licencing obligations has necessitated this type of a model.

2.9 Gap in Literature

According to Hamer (1988), the different definitions of facility management show that it is an evolving field whose nature is still fluid. Yet very pertinent in aviation, the dearth of literature in airport facility management is what motivated the researcher to undertake this study. While the relevancy and potential value of available technical and management expertise is recognised, the application of airport facility management to the specifics of facilities operations and management is poorly developed (Nutt & McLennan, 2000). It is in this light that the researcher hopes that the Civil Aviation Authority of Zimbabwe will use the study as basis to operationalize and implement facility management.

2.10 Chapter Summary

This chapter was a presentation of key literature to the field of facility management. It looked at underlying principles that impact the effective implementation of facilities management and the importance of facility management in the giving an airport competitive advantage. Also discussed in this chapter is what facility management seeks to achieve, its building blocks and business models that can be pursued which are mainly anchored on in-sourcing and out-sourcing. The next chapter, three discusses the methodology used in the research study.

CHAPTER 3 METHODOLOGY

3.1 Introduction

Saunders, Lewis, & Thornhill (2012) advised that a sound methodology sustained the validity of the findings while a pitiable methodology rendered an otherwise good research worthless. This chapter discussed the methodology used to conduct the research. The approach, design, relevant methods of generating a sample, methods of gathering data utilised, as well as the target group were discussed in this chapter. The chapter ended with a summary and also introduced the next chapter.

3.2 Research Approach

Research approach can be defined as a clear plan developed to investigate and clarify a research's aims, enabling the researcher to conduct research systematically rather than haphazardly (Kilani, 2016). Saunders, Lewis, & Thornhill (2012) defined research strategy as "the general plan of how the researcher will go about answering the research questions. A qualitative method is deemed to be most fitting when a study's object is to provide a comprehensive description of any status quo, events, people or perceived behaviours (Saunders et al., 2012). The research was largely qualitative as the main purpose of this design was to describe what was prevalent with respect to facility management at CAAZ. A qualitative research design was used as it allows issues and subjects covered to be evaluated in depth and in detail (Patton, 2002). It also allows scope for the direction and framework of research can be revised quickly as soon as fresh information and findings emerge. A quantitative approach was also used because there are variables that need to be

quantified such as the number of employees taking place in the study, years worked, highest qualification and experience.

3.3 The Research Design

Yin (2009) defined the case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident. For this particular research project, a case study was used. According to Simon (2011) the primary process for undertaking a case study is to explore the particularity, the uniqueness of a single case. Using a case study was advantageous in the fact that it dealt with a unique situation in which almost all the variables in question were in existence in one particular setting. The case study method was used to also understand a real life event or occurrence in depth. Understanding of a case study included important contextual conditions because they were significant to the phenomenon of the study.

3.4 Research Population

According to Saunders, Lewis, & Thornhill (2012) the target population is denoted by the totality of all elements under study. Yin (2014) concurred that it is a complete enumeration of every unit or element in the entire phenomenon under study. The Civil Aviation Authority of Zimbabwe employed a total of 900 people across the country which made the research target population.

3.4.1 Sampling

According to Bryman & Bell (2015), sampling referred to the selection of a subset and representative participants of the research out from the population, mainly as a result of the time and resource challenges involved in trying to administer the instrument to the entire population. If the study is a qualitative one, not every member of a population may be in a position to give meaningful data for the purpose of meeting the research objective (Kaseke, 2009). The researcher used a non-probability sampling method, that is, purposive sampling to select the most informed respondents on the subject at hand (Bryman & Bell, 2015; Cooper & Schindler, 2014) after also considering other factors such as monetary budget, time and geographical area covered.

3.4.2 Sampling Technique

Maximum variation sampling, also known as heterogeneous sampling, is a purposive sampling technique used to capture a wide range of perspectives relating to a study. It relies on researcher's judgment to select participants with diverse characteristics to ensure the presence of maximum variability within the primary data. The basic principle behind maximum variation sampling is to gain greater insights into a phenomenon by looking at it from all angles. This can often help the researcher to identify common themes that are evident across the sample. (Saunders, Lewis, & Thornhill, 2012)

At the time of study, the Authority was centralised i.e. all the decisions and procurement for all its airports were done at the head-office. The head-office was housed in the capital city Harare at R. G. Mugabe Airport, the biggest airport in the country which is where the researcher was stationed. The sample used was picked

up from this airport primarily because this is where the most informed respondents were stationed and secondarily due to financial constraints. The Authority was made of eight directorates namely Human Resources and Administration Directorate (HRAD), Directorate of Air Navigation and Technical Services (DANTS), Directorate of Flight Safety and Standards (DFFS), Finance Directorate (FD), Directorate of Airports (DA), Aviation Security (AVSEC), Emergency Rescue and Medical Services and Corporate Services (ERMS). DANTS and DA were responsible for technical services and maintenance with the rest of the directorates being mostly users. To come up with the sample the researcher picked up all the operational, tactical and executive management as they are directly involved in decision making and all the technical services staff for their technical expertise as they are responsible for installations and maintenance plus approximately 20% of users from each section as they interface directly with facilities. This was done for diversity thereby ensuring variability within the primary data. For the purposes of selection, users are denoted to be about 20% for most sections but practically they are more as they are also represented in management. The total sample was therefore 158 elements. The resultant sample is in table 3.1 below:

Table 3.1: Sample Size

Target Population	**Total Elements**	**Elements into Sample**
Executive Management	5	5
Tactical Management	10	10
Operational Management	16	16
DANTS	160	32
DA	120	19
FD	30	6
HRAD	10	2
AVSEC	200	30

ERMS	150	20
DFFS	50	10
Corporate	40	8
Total	**791**	**158**

3.5 Data Collection Instruments

Information for this study was derived from both primary and secondary data sources.

3.5.1 Primary data

Primary data refers to first-hand information that was acquired from the original source by the researcher on the variables of interest for the purpose of original research (Sekeran & Bougie, 2009). The researcher used questionnaires and personal interviews to extract the primary data. The researcher administered the questionnaires herself and conducted the interviews for the sole purpose of collecting data on facility management at CAAZ. The questionnaire comprised of two parts, the first one covering demographics and the second section delved into the actual research objectives. Some responses in the second section required simple yes or no whilst the other used the 5-point Likert scale. 1 representing strongly disagree, and 5 strongly agree which allowed for a more accurate way to quantify perceptions of the respondents (Creswell, 2014). Only executive management were interviewed as interviews if not managed well can be time consuming. However the researcher kept them short and on point.

3.5.2 Secondary data

Secondary data from literature review was also used in the study as some data or information was difficult to obtain due to time and budgetary constraints. The

secondary data was obtained from reviewing journals and literature relevant to the subject matter of this research. The researcher used it in conjunction with primary data to validate the research findings and also to justify the significance of the study (Saunders et al., 2012).

3.5.3 Questionnaire Pre-testing and Piloting

The researcher conducted a pilot study first to ensure that the research instrument was clear enough to collect valid information as purported by (Prebensen et al. 2011). A pilot study was a small scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events and effect size (statistical variability) in an attempt to predict an appropriate sample size and improve the study design prior to performance of a full scale research project (Hulley et at., 2007). 5 questionnaires were administered to Human Resources and Administration staff. Generally, the significance of piloting went beyond improving the wording of the questions, other issues that were considered also encompassed procedure such as the ordering of questions (Creswell, 2014). Flaws identified were rectified at this stage.

3.6 Data Collection Procedure and Administration

After the necessary approvals had been sought the questionnaires were printed for distribution. Phone calls and messages were used to follow-up and remind the participants of the questionnaires so as to increase rate of responses however only 8 questionnaires were not returned. After collecting the complete questionnaires, data was coded and then entered into SPSS tool for analysis. The researcher thanked the respondents for their time and effort. They were also assured that, the researcher would let them know the outcome of the study.

3.7 Data Analysis and Presentation

The data that was collected was organised. IBM SPSS version 26 (2019) software was used in coding of questionnaires and data capturing. Microsoft Excel and SPSS were used for analysis of quantitative data through the use of statistical techniques such as frequency counts, percentages, arithmetic means, standard deviations, pie charts and tabulation to show differences in frequencies. Qualitative data was analysed descriptively from the questionnaires. Bar charts were used to display nominal or ordinal data.

3.8 Validity and Reliability

According to Saunders et al., (2012) reliability measured the extent to which research instruments would yield consistent results or conclusions and enabled similar deductions to be reached by different researchers. Fraenkel et al. (2011) proposed that validity of the instruments must always be considered within the context in which the researcher would be working so as to draw valid conclusions about the perceptions, beliefs and attitudes of the respondents under study. Further to that they argued that real validity had to do with how defendable and dependable the inferences researchers make from the data collected through the use of chosen instruments. The pilot study went a long way in ensuring validity and reliability and it allowed the researcher to improve readability, comprehensiveness and relevance of the questionnaires to the study.

3.9 Ethical Consideration

Permission to conduct the study was sought and obtained from the university. Saunders et al., (2012) posited that physical access may be a challenge because

some individuals and organizations are usually not interested or prepared to participate in the research activities due to factors like time constraints and fear of espionage. Since this research was case study based, the researcher also had to get authorization from CAAZ which would allow her to gain access to their resources for the purposes of study only. This was supported with a confirmation letter from Africa University that the researcher was a student at the said institution and that any information collected were purely for study purposes. As the aviation industry is sensitive, the researcher was asked to sign a confidentiality clause to protect the entity. Respondents chose to participate on their free will as they were adequately apprised of what the research was all about through the introductory letter and informed consent. To protect their privacy no identity data was collected. The respondents were strongly assured that the information provided would never be used for any other purpose apart for the academic purpose it was being collected for.

3.10 Chapter Summary

This chapter discussed the methodology used in the study. Issues to do with research design, ethics of the study, sampling, data analysis have been discussed. The chapter also discussed the validity and reliability of data. Chapter 4 is on presentation, analysis and interpretation of data.

CHAPTER 4 DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

Following the methodology set forth in the previous chapter, the data was collected using both the questionnaires and the interviews, and was then cleaned and analyzed. The chapter has been divided into four sections. The first section shall present the response rate followed by the presentation of the reliability tests. The third section presents demographic analysis and the last section shall discuss the tests carried out and provide a summary of the findings.

For the analysis of the quantitative data, the researcher used IBM SPSS version 26 (IBM, 2019). Several statistical analyses were performed. These ranged from descriptive statistics to factor analysis. For descriptive analysis, the researcher made use of primarily the mean and standard deviation. With respect to factor analysis, Principal Component Analysis was used as the factor extraction method (Field, 2016). To complement the quantitative results, for the analysis of qualitative data, the researcher made use of thematic coding. The key themes from the qualitative results were extracted and were triangulated with the results from the quantitative results in line with the prescriptions by Creswell (2014) and Yin (2018).

4.2 Response Rate

Out of 158 questionnaires administered, a total of 152 were returned back. Nevertheless, out of the 152, 11 were discarded as the proportion of the missing data

was more than 15% (Dong & Peng, 2013; Cheema, 2014). The respective response rate is presented in Table 4.1 below.

Table 4.1: Response Rate

	Count	**Percentage**
Administered Questionnaires	158	100.0%
Returned Questionnaires	152	96.2%
Incomplete Questionnaires	11	7.0%
Valid Questionnaires	141	89.2%

From the results above, the response rate after eliminating the incomplete questionnaires was 89.2%. This is a very high response rate given that Creswell (2014) suggests an optimal response rate of 60%. This is further supported by Saunders et al. (2012) who also cite 60% as the optimal minimum threshold for the response rate for small populations. In this regard, the researcher confirmed the sample used as being ideal and representative.

4.3 Reliability Analysis

According to Sekaran and Bougie (2016), it is important for the researcher to validate the reliability of the instruments used. In this light, the researcher tested the reliability of the questionnaire by conducting the reliability test. The Cronbach's alpha statistic was used as a measure for reliability (Zikmund et al., 2012). The results are presented in Table 4.2 below.

Table 4.2: Reliability Analysis

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.871	.870	37

Schindler (2019) and IBM (2019) cite the minimum acceptable Cronbach's alpha to be 0.7. From the results above, the alpha statistic for the 37 variables used in the questionnaire was 0.871. Because this was greater than the minimum expected 0.7, this confirmed that the questionnaire was internally consistent and reliable.

4.4 Demographic Analysis

This section explored the demographic variables that were used in this study. Several scholars such as Zikmund *et al.* (2012), Cresswell (2014) and Yin (2018) all confirmed the importance of understanding the demographic distribution of the respondents. This helped to identify possible sources of bias, as well as to identify possible socio-demographic factors that could have possibly influenced the research outcome. For this study, there were five major demographic variables that were used and these included: gender, age, highest educational qualification, years working in organisation as well as the position in department and these are presented below.

4.4.1 Gender of Respondents

From the study, the majority of the respondents were males (68.09%), while females were only 31.91% as shown in Figure 4.1.

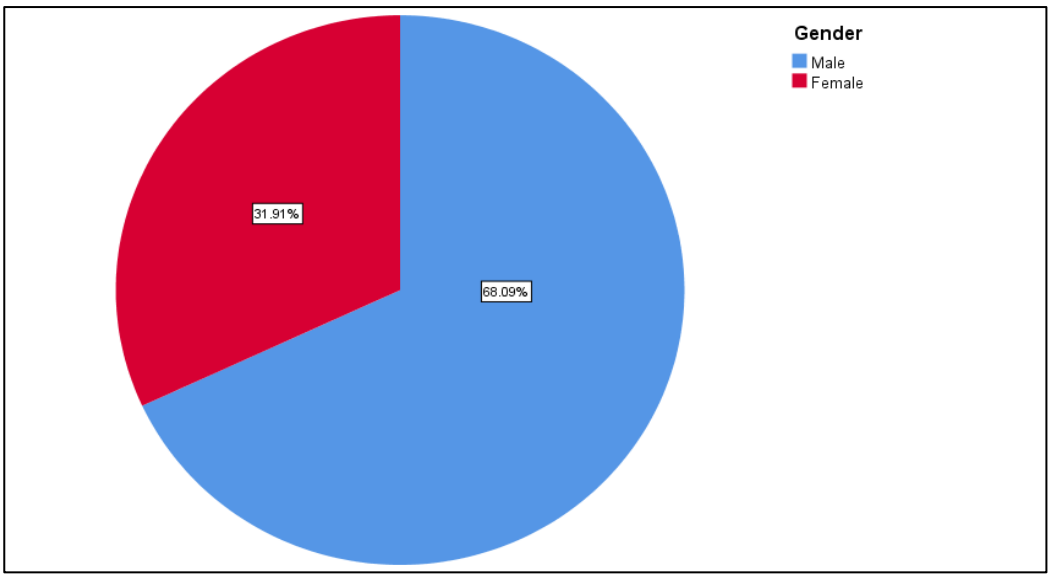


Figure 4.1: Distribution of Gender of Respondents

These findings tend to concur with the findings by ZIMSTAT (2016) which also confirmed the prevalence of male employees in the aviation industry. This predomination of males over females tends to cut across multiple sectors beyond the aviation industry. Effectively, as noted by Bryman & Bell (2015) this gender disparity may affect the balance in the opinions expressed by the respondents. However, for this study, the researcher considered the gender difference card to have less influence as the researcher was dealing with a factual subject matter as opposed to highly subjective opinion-driven responses.

4.4.2 Age of Respondents

Regarding the age of the respondents, the majority of the respondents were aged within the range of 35 up to 44 years and these were found to be 58.87%. The second highest was 26-34 years, while those aged between 45 and 54 years were 12.77%. For the categories with the least proportions, only 1.42% were aged below 25 years while only 2.13% were aged above 54 years as presented in Figure 4.2.

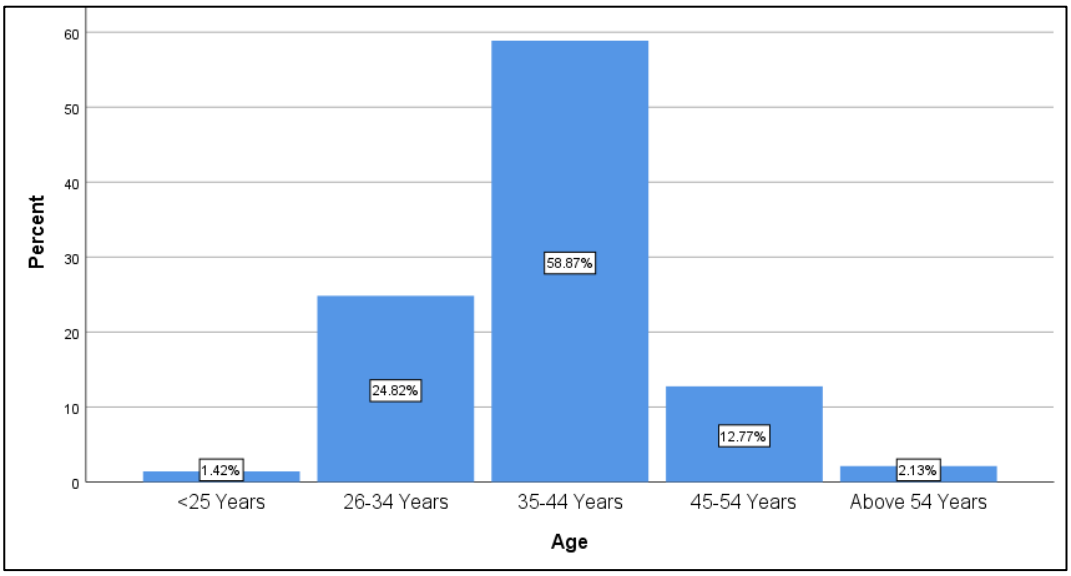


Figure 4.2: Distribution of Age of Respondents

It follows, therefore, that from the findings above, the bulk of the employees that were sampled were middle aged. One of the possible reasons for the normal distribution of the respondents' age distribution is the fact that the researcher targeted respondents with extensive experience in the organisation and hence the lower distribution of respondents less than 25 years.

4.4.3 Highest Educational Qualification of Respondents

Figure 4.3 below presents the distribution of the respondents by the highest level of education attained.

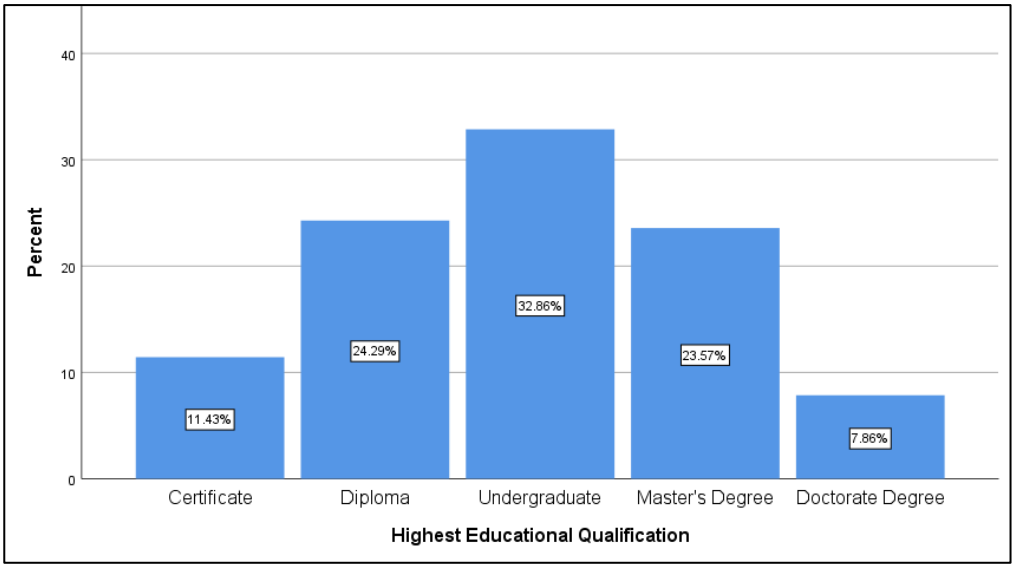


Figure 4.3: Distribution of Educational Qualifications of Respondents

From the findings above, the distribution of the education of the respondents was normally distributed. The highest distribution comprised of 32.86% of the respondents and these had attained the undergraduate degree as the highest level of qualification. This was seconded by the diploma qualification for which there were 24.29% while those with a masters' degree were 23.57%. Certificate holders were 11.43% while doctorate holders were the least and were 7.86%. Overall, the researcher can confirm that all the respondents had attained at least some tertiary level qualification. To this effect, the researcher argues that the respondents had all attained some education that would facilitate the ease of comprehension of the research instrument's questions.

4.4.4 Years working for the Organisation

The fourth demographic factor that the research looked into was the number of years the respondents had been working for the organisation. From the results, 42.55% of

the respondents had worked for the organisation for 11-15 years while 29.08% had worked for the organisation for more than 15 years as shown in Figure 4.4.

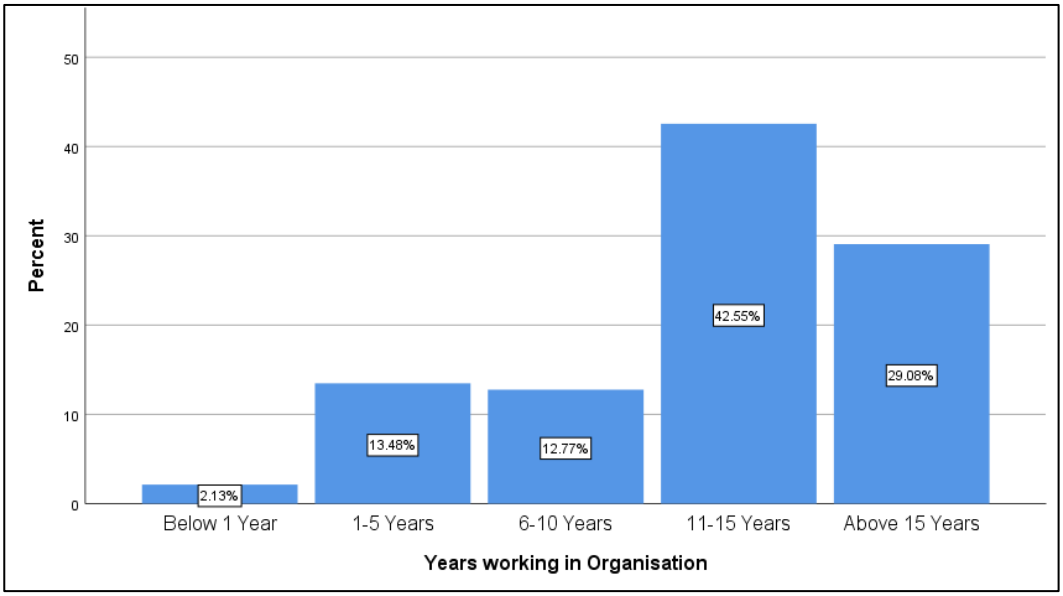


Figure 4.4: Distribution of Respondents by Years Working for Organisation

Further analyzing the above results, it emerged that 71.63% had worked for the organisation for more than 10 years, while the rest had worked for less than 10 years. These findings do match with the criterion that was used to select the respondents. Priority was given to those with more experience in the organisation. This would ensure a richer research that would be informed by people who have been in the system for a very long time. According to Leedy & Ormrod (2013) this approach of purposively selecting research participants who have more experience tends to improve the quality of the responses and thereby increasing the trustworthiness of the data collected.

4.4.5 Position in Organisation

The last demographic factor that the research considered was the position the respondent held in the organisation. The respective findings are presented in Figure 4.5 below. From the findings, the majority of the respondents (51.77%) were ordinary employees, while 16.31% were supervisors. Given the time constraints, it was not possible to get hold of all the supervisors as they are shift workers. However they are well represented as each supervisor reports to a manager who worked the normal hours. Further, 22.70% were managers while 9.22% were executive managers. From this outcome, there was a more balanced selection of employees (51.77%) and those that are in authority to supervise/manage the lower employees (48.33%). This balanced approach helped minimize bias where the study would potentially lean towards one perspective. Triangulating the position of the employees and supervisors according to Yin (2018) ensures a more robust evaluation.

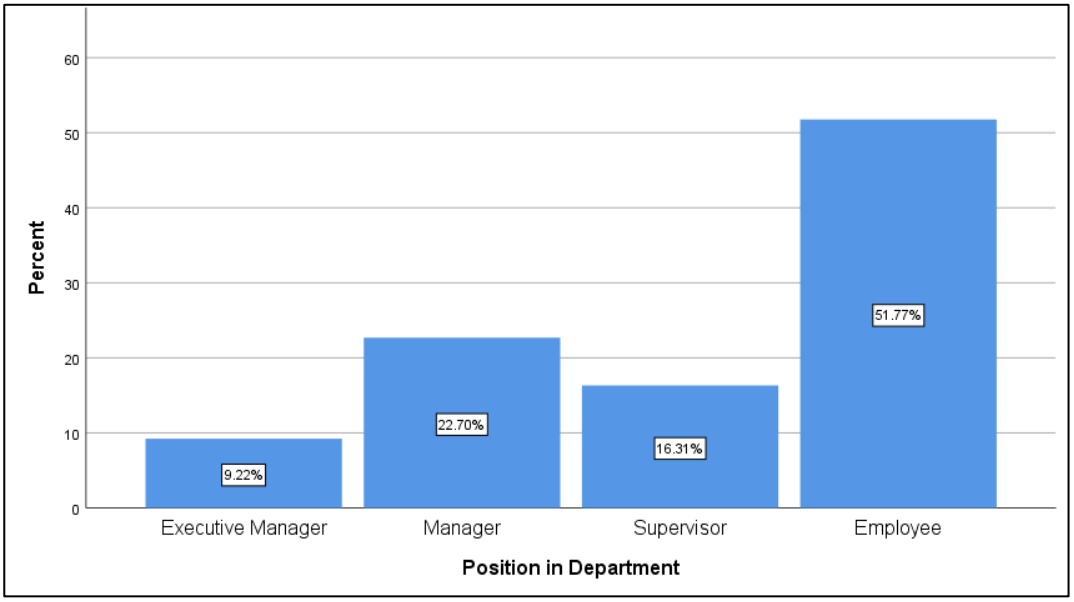


Figure 4.5: Distribution of Respondents by Position in Organisation

In light of the foregoing balance between the low-level employees and the superiors, the researcher was assured that the findings from the study were reliable and trustworthy.

4.5 Objective 1: Effects of Management Skills in Relation to AFM

The first objective was to assess the effects of skills and/or qualifications of management in relation to airport facility management. To achieve this objective, the respondents were asked to rate a set of questions on a 5-point Likert scale. Using this rating scale, 1 represented strongly disagrees, while 5 represented strongly agree. This scale was measured using both measures of central tendency (mean) and measures of dispersion (standard deviation). Because this objective was measured on a 5-point Likert scale, the cutoff point for the interpretation of the mean ratings was 3.0. The respective mean ratings for the facility management at CAAZ are summarized in Table 4.3 below.

From the analysis below, it is clear is that all the mean ratings were less than 3.0. What this translates to is that the respondents tended to disagree with all the questions that they were asked with respect to their knowledge of facility management affected business outcomes. If AFM knowledge or appreciation was there then the fundamentals being checked for would have been present. The least rated had a mean rating of 1.96 and a relatively low standard deviation of 0.865 and this related to whether the organisation had a framework, policies and procedures on facility management. In other words, the respondents did not agree to a great extent that such a framework, policies and practices existed. This was further validated from the interviews where the participants did agree that despite the importance of

having a systematic facilities management framework, such was not present, but rather, facilities management was implemented haphazardly without due reporting procedures as well as monitoring and evaluation mechanisms.

Table 4.3: Descriptive Statistics – KM in Relation to AFM

	N	Mean	Std. Deviation
	Statistic	Statistic	Statistic
My organisation has a complete organizational setup on maintenance & facilities management	141	2.50	.938
My organisation has a framework, policies and procedures on facility management	141	1.96	.865
My organisation appreciates the relationship between facility management and core business	141	2.20	.920
My organisation has trainings programs to educate management to be fully conversant with aviation systems and airport management	141	2.25	.855
My organization has a succession plan in place for facilities management	141	2.26	.989
My organisation has full information on the performance of our outsourced maintenance contractors and the assets/facilities	141	2.29	.858
My organisation has a holistic maintenance which focuses on preventive maintenance than corrective maintenance (repair works)	141	2.14	.923
My organisation keeps track of the cost of its assets/facilities throughout their life cycle – from acquisition/purchase, operation, maintenance to make informed upgrading/disposal / total replacement decisions	141	2.89	1.199
My organisation has systems in place to measure real time performance of facilities and also benchmarks facilities against competition	141	2.17	.941
Valid N (listwise)	141		

The second least rated had a mean of 2.14 and this related to whether the CAAZ had a proactive all-encompassing maintenance plan or it deferred maintenance until

there repair works. Again, with the mean statistic being less than 3.0, this meant that the respondents did disagree. One of the respondents from the qualitative interviews said:

Interviewee 3:

"... The worsening macro-economic environment has made it worse to have a fully-fledged preventive maintenance plan as this would be resource-intensive. Rather, we now prioritize resources to urgent repairs."

It is clear from the above statement that the respondents did acknowledge the importance of preventive maintenance. Nevertheless, the dearth of requisite resources did force them to abandon preventive maintenance plans but rather opt for the repair of problems.

The third least rated item had a mean rating of 2.17 and this related to the importance of having systems that reported in real time the availability of facilities. It also checked on whether they were mechanisms in place to benchmark own facilities against those offered by competitors. The disagreement by the respondents did validate the finding in the paragraph above where funding constraints prevented management from acquiring such a building management system that could offer such tailbacks. From the qualitative interviews, one of the participants brought out the aspect of underfunding, citing that the organisation was underfunded and that budget expenditure was reserved largely on resolving emerging repair needs than on preventive maintenance.

More importantly, was the question relating to whether the organisation appreciates the relationship between facility management and core business. From the results, this had a poor mean rating of 2.20. This was a very low mean rating and this meant that the organisation did not give precedence to facilities management as a core strategy to consolidate higher market performance and profits. This same argument was put forth by Interviewee 1 who said:

"We are barely surviving as an organisation and the shrinking revenue inflows do not allow us to spend more, but rather, they barely enable us to ensure that the critical business functions operate. Its hand to mouth"

A follow-up question was made to check if the organisation actively inducted its management on the importance of facilities in the achievement of the core objectives. Again a mean rating of 2.25 was computed indicating that most of management was ignorant of the relationship between facilities and the core business. It further emerged from the findings that the organization did not have a succession plan in place for facilities management as evidenced by a very poor mean rating of 2.26.

With respect to the performance of the outsourced maintenance contractors and the assets facilities, the study established that the organisation did not have the full information on the performance. This is supported by a mean of 2.29, which was way less than the neutral rating of 3.0. The other poorly rated items included the lack of a complete organizational setup on asset & facilities management and this had a mean of 2.50, while the item that the organisation keeps track of the cost of

assets/facilities throughout their life cycle was ranked with a mean of 2.89. In all these instances, the ratings by the respondents were less than the cut-off mean.

From the review of the above questionnaire items, they all converged to the same point that the organisation's management were not all that knowledgeable on how facility management interacted with their core business and how it could be used to gain competitive advantage.

From the findings above using both the quantitative and qualitative research instruments, virtually all the respondents and interviewees agreed that there was no knowledge and their little to transfer to those who were younger professionally.

4.6 Objective 2: Evaluating PM Impact on Facilities Effectiveness at CAAZ

The second research objective sought to evaluate how performance management impacted the levels of efficiency of facilities at the organisation. This objective was addressed in two parts; interviews and questionnaires. The interviews sought to find out if there where mechanisms in place to measure performance in terms of availability of facilities both in real time and over a given period i.e. downtime. Questionnaires were used to check perceptions on levels of efficiency. Passenger facilitation, cargo facilitation, aircraft facilitation, security, grounds management, janitorial management, airport amenities, and energy management; solid and liquid waste management, disaster management and emergency coordination, environmental control, maintaining building fabric, stakeholder management and space planning are the major variables that were used to as indicators facility efficiency. There were 14 variables in total.

For this objective, the respondents were asked to rate the extent to which they believed each of the above were being efficiently managed on a 5-point Likert scale, with 1 representing very poor, and 5 representing very good. The researcher used descriptive analysis to establish the mean efficiency ratings for each of the variables as mentioned above. Overall efficiency rating was computed and this aggregate rating across all the 14 dimensions is presented in Table 4.4.

Table 4.4: Descriptive Statistics - Overall FM Efficiency

	N	Mean
	Statistic	Statistic
Facilities Management Efficiency	141	2.7381
Valid N (listwise)	141	

From the analysis above, the aggregate rating across all the 14 dimensions was 2.7381. Because the aggregate rating was less than the cutoff point, 3.0, it follows then that the overall efficiency of facilities management at CAAZ was poor in spite of some of the measures having been positively rated. The respective breakdown for the levels of efficiency for each and every dimension was further computed and the results from the analysis are presented in Table 4.5.

Table 4.5: Descriptive Statistics - Evaluating FM Efficiency

Indicator	N	Mean
Stakeholder management	141	3.83
Aircraft facilitation	141	3.51
Space planning	141	3.23
Security	141	3.14
Cargo facilitation	141	3.1
Passenger facilitation	141	2.89
Janitorial management	141	2.78

Disaster preparedness	141	2.67
Grounds management	141	2.54
Airport Amenities	141	2.49
Maintaining building fabric	141	2.4
Environmental control	141	2.36
Energy Management	141	2.34
Solid and liquid waste management	141	2.15
Valid N (listwise)	141	

Out of the 14 dimensions, only five were positively rated and the highest was stakeholder management with a mean rating of 3.83. This was followed by aircraft facilitation with a mean rating of 3.51 while the third highest was space planning with a mean of 3.23, and the fourth with a mean of 3.14 was security. The last positively rated was cargo facilitation and this had a mean of 3.10. Though the overall performance was poorly rated, the Authority performed well in its core business of aircraft and cargo facilitation. The result showed that respondents were confident with the security system at the airport. Though less than cut-off the rating for passenger facilitation was not far off at 2.89 points. Passenger facilitation could have been affected by other factors such as anxiety before travel which slows down the whole check-in process.

On the other hand, the efficiency mean ratings for the other dimensions that were tested were all less than the cut-off point. The most poorly rated was solid and liquid waste management, and this had a mean of 2.15. The second least rated had a mean of 2.34 and this was energy management. Environmental control was the third least rated and had a poor mean rating of 2.36. Maintaining building fabric was rated negatively with a mean of 2.40. The other dimensions that were looked into included: grounds management, janitorial management, health and safety, liquid

waste management as well as disaster management and they were all rated less than 3.0.

The following were the revelations from the interviews:

1. CAAZ had no building management system that reported on the state of facilities
2. Faults came to be known as a result of routine physical inspections or as customers complained
3. Records on performance of facility depended inspections and complaints which in some cases were not logged could not be completely relied on but rather saved as indicators to performance

In conclusion the lack of performance measurement negatively impacted the efficiency levels of facility. If there were performance measurement mechanisms in place, CAAZ would be proactive increasing efficiency levels.

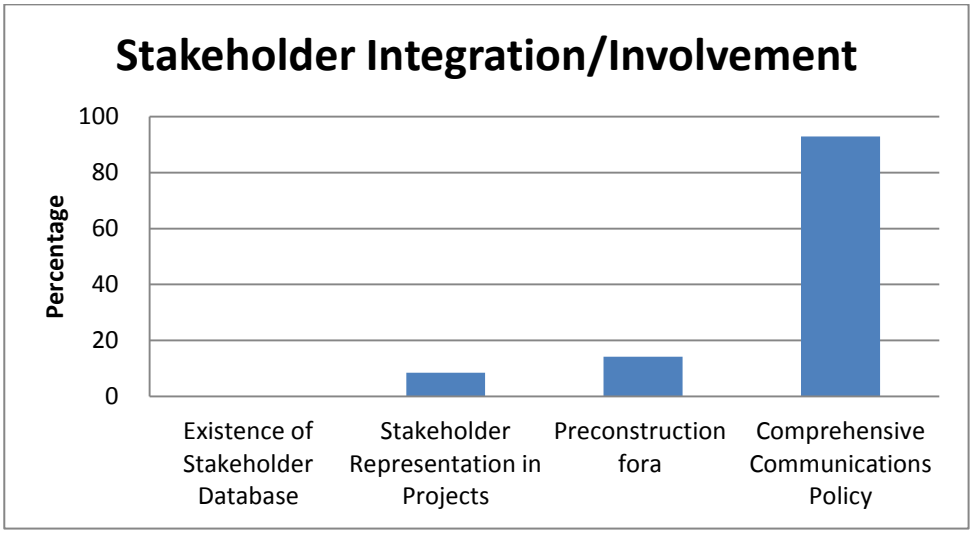
4.7 Objective 3: Evaluation of Stakeholder Expectation Integration into AFM

The third objective required simple yes and no answers on the questionnaire. This objective sought to check if whether stakeholders' needs and inputs were taken into consideration for the design phase of facilities right up to occupancy or use the facility. Simple yes or no were used for this particular test where Yes represented existence and No non-existence. Table 4.6 below refers.

The first element to be checked was the existence of a stakeholders' database for complete inclusion. This way no stakeholder would be omitted in critical moments. The result was a resounding 0%. The absence of a stakeholder database was rather surprising especially considering that there are many parties with vested interests in

the organisation. Forgetting one of them could mean derailing of a project should that one be a power house. Stakeholder representation in all phases of projects relating airport facilities was the second element to be tested. A paltry 9% of the respondents were of the opinion that stakeholders were represented which was rather sad. This implies that stakeholder expectations or stakeholders or needs are not addressed. Decisions are made CAAZ on their behalf. This could translate to a lot of corrections and customization at the end of a project which is more costly as compared to getting it right the first time. The existence of forums where stakeholders could share their expectations was the third element to be tested. The result is 14% indicating that such forums where either restricted or not available completely. The last thing or one of the most important elements to be evaluated was the existence of a comprehensive communications policy which provided guidance on how the different stakeholders would be engaged. It was pleasing to discover that the Authority had a comprehensive Communications Policy in place. The result was 92%, a dramatic improvement from the previous result.

Table 4.6: Descriptive Statistics – Stakeholder Integration/Involvement



The result indicates that enough is not being done by the Civil Aviation Authority of Zimbabwe to involve its stakeholders.

4.8 Objective 4: Major Determinants of AFM Efficiency

Having established the individual efficiency ratings, the researcher went forward to examine the major determinants that have the greatest influence to the overall facility management efficiency. To achieve this, because there were 14 variables, according to IBM (2018), dimension reduction techniques were the ideal statistical tests. Field (2018) further posits that principal component analysis is the best statistical test for this purpose. To ensure the validity of principal component analysis (PCA), the dataset was tested for sample adequacy using the Kaiser-Meyer-Olkin measure of sampling adequacy (Hair et al., 2014) and the results are presented in Table 4.6.

Table 4.7: Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.878
Bartlett's Test of Sphericity	Approx. Chi-Square	738.346
	df	91
	Sig.	.000

From the outcome, the KMO was found to be 0.878. According to IBM (2018), the minimum acceptable KMO is 0.5 and by virtue of the computed KMO being greater than 0.5, it meant that the assumption of sampling adequacy was met. Principal component analysis was run with all the 14 measures of facility management efficiency. Varimax rotation was also applied to improve the accuracy of the extraction and the benchmark for the PCA component extraction was limited to only

those components with eigenvalues greater than 1.0 (Field, 2016). All in all, three components were extracted as shown in the scree plot below.

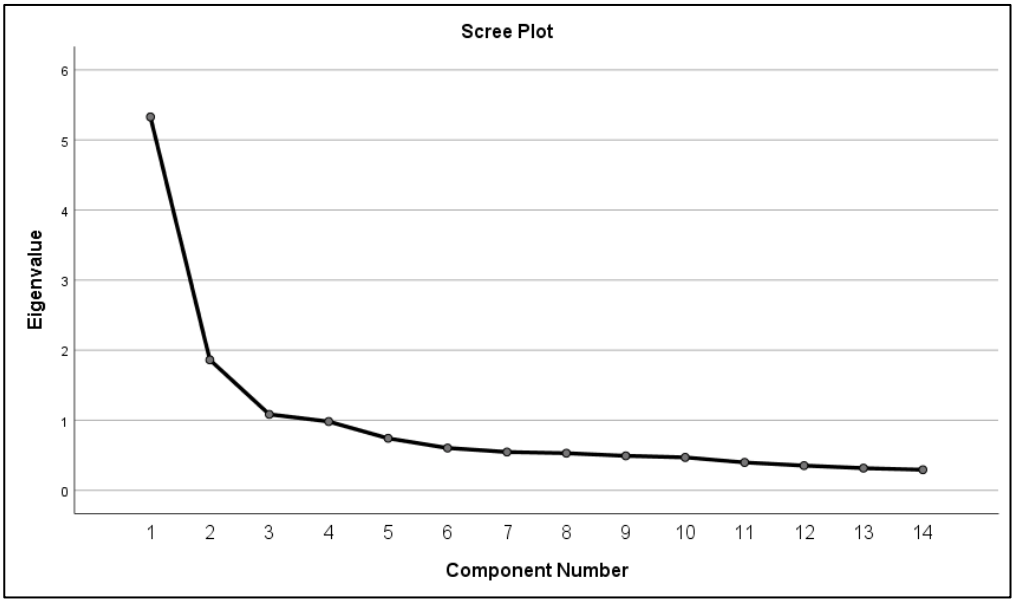


Figure 4.6: Scree Plot - AFM Efficiency Components

The total variance explained for each of the extracted components is presented in Table 4.8.

Table 4.8: Total Variance Explained - AFM Efficiency Classifications

	Initial Eigenvalues			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.328	38.055	38.055	3.003	21.447	21.447
2	1.862	13.296	51.351	2.996	21.401	42.848
3	1.084	7.743	59.094	2.274	16.246	59.094
4	.982	7.012	66.106			
5	.742	5.301	71.407			
6	.604	4.313	75.720			
7	.547	3.908	79.628			
8	.530	3.786	83.414			

9	.492	3.515	86.929			
10	.470	3.354	90.282			
11	.398	2.841	93.123			
12	.353	2.519	95.642			
13	.316	2.259	97.902			
14	.294	2.098	100.000			

From the results above, the total variance explained for all the three components was 59.094%. What this meant is that the 3 major components/classifications explained 59.094% of the total variance by the 14 measures. This was a good variance given that Hair *et al.* (2014) suggested the minimum acceptable total variance to be 50%. Among the three classifications, Component 1 explained the greatest variance of 21.447% and this was seconded by Component 2, whose proportion was 21.401%. The third component explained only 16.246% of the total variance. The eventual rotated component matrix that shows how the facility management efficiency measurements were classified into the three major components is presented below.

Table 4.9: Rotated Component Matrix - AFM Efficiency Classifications

	Component		
	1	2	3
Passenger facilitation	.802	.084	.111
Space planning	.677	.175	.031
Security	.677	.238	.341
Janitorial management	.663	.397	.209
Disaster preparedness	.585	.417	.143
Grounds management	.558	.295	.180
Solid and liquid waste management	.234	.783	-.092
Environmental control	.123	.750	.152
Airport Amenities	.201	.749	-.016
Maintaining building fabric	.333	.677	.153
Energy Management	.184	.350	.290
Aircraft facilitation	.193	-.065	.834
Cargo facilitation	.027	.260	.780

Stakeholder management	.235	-.006	.777
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			

According to Field (2016), only factor loadings that are greater than 0.5 are important in the classification. The final classifications of each of the 14 measures have been presented in bold in the table above. The primary determinants of facility management efficiency at CAAZ were classified in Component 1 and these were:

Component 1: Primary Determinants of AFM Efficiency

- Passenger facilitation
- Space planning
- Security
- Janitorial management
- Disaster preparedness
- Grounds management

This was not surprising as these are the things that make an impact to a person as first impressions. The other variables were background processes that people do not normally give much thought to.

The secondary determinants of facility management efficiency at CAAZ comprised of:

Component 2: Secondary Determinants of AFM Efficiency

- Solid and liquid waste management
- Environmental control
- Airport Amenities

- Maintaining building fabric

Lastly, the tertiary determinants of facility management efficiency at CAAZ comprised of:

Component 3: Tertiary Determinants of AFM Efficiency

- Aircraft facilitation
- Cargo facilitation
- Stakeholder management

The respective breakdown of the efficiency measurement aggregates of each of the three classifications above are summarized in Table 4.9.

Table 4.10: Descriptive Statistics - AFM Efficiency by Classification

	N	Mean
	Statistic	Statistic
Primary Determinants	141	2.8747
Secondary Determinants	141	2.3493
Tertiary Determinants	141	3.4799
Valid N (listwise)	141	

From the above results, the most critical determinants of facility management efficiency had an aggregate mean of 2.8747. Because this was less than 3.0, it followed that CAAZ needs to improve significantly in these areas if it is to compete with other world class facilities. The same was noticed for the secondary determinants. However, these were rated very lower, with a mean of 2.3493. With respect to the less visible determinants, they had an aggregate mean rating of 3.4799. Though acceptable the rating could still be improved as these not so obvious

processes were critical to the operation. At face value these looked like “tertiary” processes because they do not immediately come to one’s mind when they get to an airport.

4.9 Chapter Summary

The chapter discussed the outcomes of the research study. The response rate was high enough to substantiate the study. The instrument used was well validated. Demographic information of the respondents was evaluated. The results indicated that they were challenges with FM at CAAZ. The indication was that CAAZ needed to engage in FM if it was to claim a position in the market. Chapter 5 to follow concludes the research and submits recommendations to the challenges.

CHAPTER 5 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarized the research findings as discussed in chapter 4 and concluded the research study. A number of entities such as the National Railways of Zimbabwe, Zimpost and the Cold Storage Commission fell victim to ill management of facilities (Rusare, 2018) a demise that plagued many state-owned entities. This research sought to demystify facility management and the challenges surrounding it. Thus recommendations from this research were not only to the benefit of the CAAZ but also its major stakeholder the government and even called for reforms in policy.

5.2 Summary

The Civil Aviation Authority of Zimbabwe was burdened with maintaining the eight airports in Zimbabwe. Airports serve as an eye into the country, thus maintaining airport facilities was such a "mission critical" responsibility for the Authority. The aim of the research was therefore to investigate the FM challenges at the institution and possibly recommend solutions to these challenges through the research study. As such the objectives of the research were:

(i) Assess the effects of skills and/or qualifications in relation to airport facility management at CAAZ.

(ii) Evaluate how performance management impacts the effectiveness of facilities at CAAZ.

(iii) Evaluate how stakeholder expectations are integrated into airport facility management.

(iv) Identify the major determinants of facility management at the Authority.

Literature reviewed showed that facility management could not be done haphazardly; a methodical approach had to be followed. If managed well, the potential benefits included return on investment made on the facility, improved longevity of the asset(s), containment of running costs etc. Other or intangible benefits included well-being especially of the permanent inhabitants of the facility in the case of the airports those were the employees and other stakeholders such as airlines and government agents. Marriot (n.d.) asserted that if a business took care of its people, then its people would take care of the business' customers and the business would take care of itself.

In order to fulfil the research objectives, a study was undertaken at the Authority. Because of constraints such as such as time, funds, the size of the organization and geographical location, a sample of employees were hand-picked to part-take in the study. Operational staff, tactical and executive management where all represented for a balanced opinion. A survey, interviews, observations and walk- through were amongst the techniques used for data collection. The following conclusions were drawn from the findings of the study as set out in Chapter 4:

5.3 Conclusions

5.3.1 Objective 1: Effects of Management Skills and/or Qualifications in Relation to AFM

The deductions which were inferred from the results as summarized below were that CAAZ had limited knowledge on how facility management related to their core

business. The results indicated that facility management was alien to the Authority and as such not much attention was paid to it. CAAZ did not harness facility management to gain competitive advantage and thrust the organisation forward.

Summary of Results to Objective 1: CAAZ appeared to be ignorant of the relationship between facility management and the core business. The results depicted that there was no systematic FM at CAAZ. The respondents did not agree to a great extent that an airport facility management framework, policies and practices existed but rather, facilities management was implemented haphazardly without due reporting procedures as well as monitoring and evaluation mechanisms. There was no succession planning to harness and retain knowledge to further the interests of the business. There were no performances measures put in place to benchmark or track the performance of facilities either against self or against competition.

5.3.2 Objective 2: Evaluation of PM Impact on Effectiveness of Facilities

The aggregate rating for efficiency of facilities management stood at 2.7 which were below the median 3. This indicated that the organisation was struggling in keeping the facilities in good working conditions. This poor rating was attributed to absence of performance management techniques/tools/systems which reported on the status quo of facilities at any given time. The following revelations came out from the tests carried out:

1. There was no performance management system/s to give a status report of facilities at any given point in time
2. Fault reporting and attendance was a reactive process triggered by stakeholder complaints or from the routine physical inspections done by

CAAZ. It was possible for some faults to go unnoticed if the area was not frequented either by inspections or by stakeholders.

3. Statics drawn from faults reports and inspections could be used to gauge the efficiency levels within the Authority. This however could not be relied upon completely as they only gave an indication of the state of facilities since they were not holistic and somewhat subjective as they were limited to the reported or inspected facilities.

The major reason for cited for absence of performance management systems were financial constraints.

5.3.3 Objective 3: Evaluation of Stakeholder Expectations and Integration into AFM

CAAZ was lagging behind in as far as engaging or involving stakeholders was concerned. The results depicted that CAAZ did not keep a database of its stakeholders which left their involvement to chance. The domino effect of that was the stakeholders were not adequately represented in projects or matters that affected them. In as far as AFM was concerned the consequences of this were costly customizations at occupancy or functionally obsolescent facilities. It was pleasing however to note that CAAZ had a comprehensive communications policy which was major step in the right direction to engaging stakeholders. Again resources limitations were cited as major constraints for not putting systems in place to engage stakeholders.

5.3.4 Objective 4: Major Determinants of Facility Management at CAAZ

According to the results, the major determinants of facility management at CAAZ were split into three components being primary (Component 1), secondary (Component 2) and tertiary (Component 3). 59.094% of the total variances in efficiency by the 14 measures were due to these 3 major components/classifications. Table 1 below shows FM efficiency by classification.

Table 5.1: Facility Management Efficiency by Classification

	Mean
	Statistic
Primary Determinants	2.8747
Secondary Determinants	2.3493
Tertiary Determinants	3.4799
Valid N (listwise)	

At face value it appeared as if the Authority was not efficient in the critical areas. However experience obtained whilst conducting the research study revealed that front line processes were impressionable to an airport visitor thus had a greater impact as opposed to tertiary processes which ran in the background hence the “poor performance” of the primary variable.

5.3.5 Summary of Findings

AFM at the Civil Aviation Authority of Zimbabwe has suffered largely due to the funding problems. All the findings above are emanating from financial constraints.

5.4 Implications

Studies proved that the major impact of poor FM was more financial than anything else regardless of cause. Yahaya (2016) averred that poor facility management haunts organizations with **financial erosion** through:

- Dilapidated buildings/facilities which took colossal amounts of money to restore to serviceable state
- White elephants which incurred costs by virtue of their existence from maintenance and other running costs whilst there was really no benefit being drawn from them
- Health and safety issues which threatened the users of the facility
- Expensing heavy sums to right management wrongs

Ill-facility management also threatened not only the visual outlook of the airports (neglected infrastructure is gloomy and derelict) but also the quality of service rendered to the airport's visitors. This eventually leads to financial loss still as no one wants to use an unattractive airport with poor facilities and poor service. By turning a blind eye to FM, CAAZ was doing itself a huge disfavor and foregoing the many benefits that could accrue as a result of facility management.

5.5 Recommendations

The following recommendations were proffered in line with the objectives of the study, the actual findings as well as the literature reviewed.

5.5.1 Objective 1: Effects of Management Skills and/or Qualifications in Relation to AFM - KM

As a state run entity, some recommendations require change in policy by the major stakeholder; the Government of Zimbabwe. Thus recommendations have been spilt to those which can only be facilitated by the stakeholder and those which fell in the ambit of the organisation.

To the major stakeholder: The Central Government of Zimbabwe:

1. As raised in literature review another business model to bring Zimbabwe's Airports up-to-scratch by capital injection is privatization. A business owner does whatever is necessary to ensure profitability.
2. The central government should consider Public Private Partnerships (PPP) as a solution to the issue of funding. Such partners do not only bring funding to the table but also expertise and exposure.
3. To improve facility knowledge, the government should consider introducing Facility Management in tertiary institutions to provide adequate skills for the quest and ensure development.
4. As part of its governance initiatives, the government could also include facility management in all public entities as it did with the internal audit function.

To the Civil Aviation Authority of Zimbabwe

The researcher proposes that CAAZ adopts that AFM framework outlined in Figure 5.1 below as the research findings are centered on the pillars of the framework. The AFM Framework forms a skeleton to cover the major issues stakeholder

involvement, performance management and knowledge management. Policy and procedure crafting would then be covered in the flesh of the framework. Other pertinent policies for consideration include maintenance and replacement, sustainability, sinking fund etc.

As part of strategy, the organisational structure should consider providing an AFM Specialist who consolidates and directs the works of other experts to come up with a holistic FM plan for CAAZ. By so doing the silo mentality would be addressed. A department could be formed in support of this worthy cause.

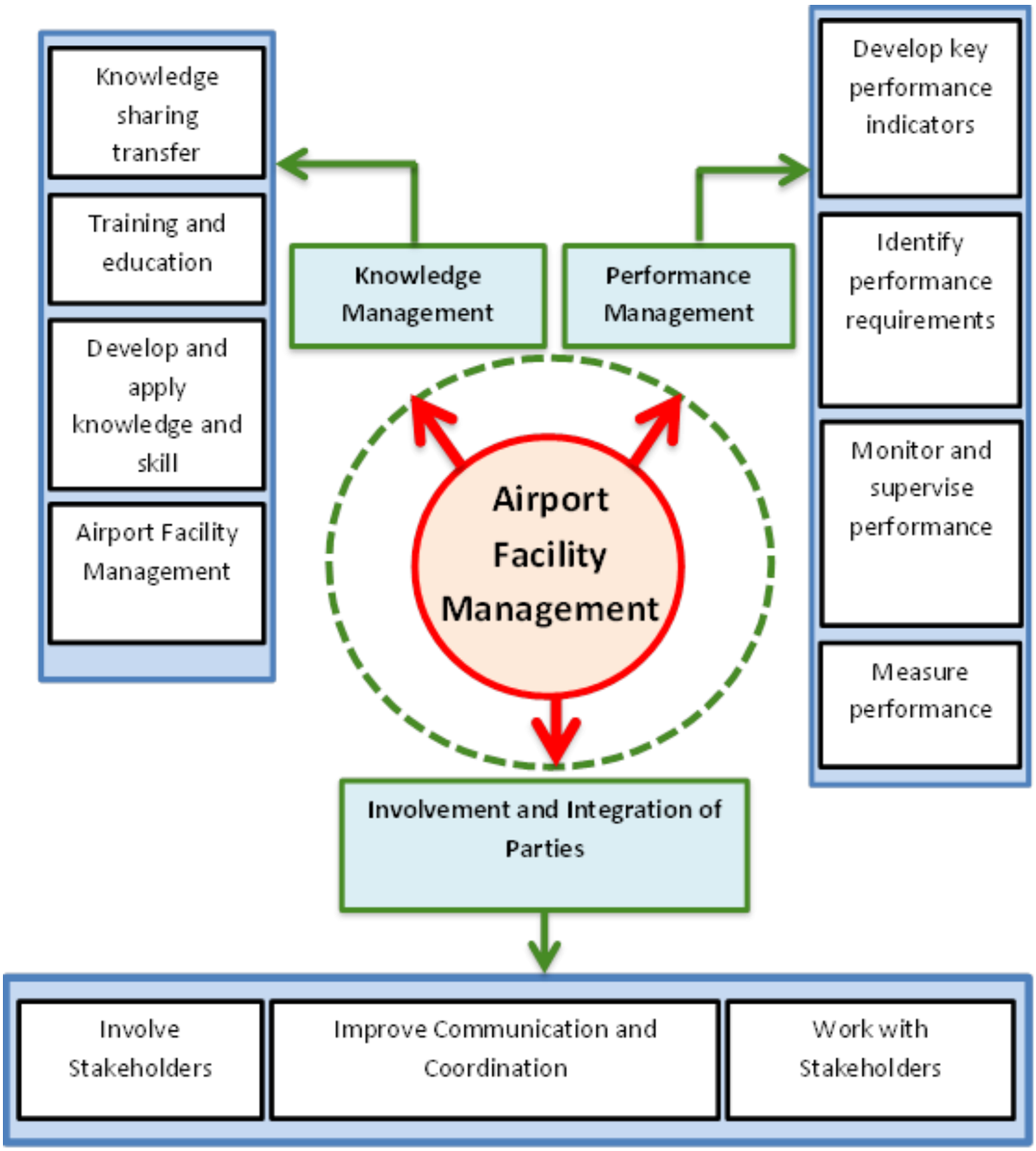
For the success of the endeavor, a change of mentality is sought. Thus aware programs could be done to ensure that everyone understands the organisation's thrust. Senior management could be trained in FM so that they attain full appreciation of the interrelationship between AFM and the success of the Authority since they push strategy and are supposed to be pioneers in the organisation.

The major advantages offered by this frame work are:

a. The conceptual framework forms a skeleton in which the methods, tools, techniques, policy and models can then be added.
b. It deals with fundamental issues which make it industry independent.
c. It is not prescriptive; it leaves models/systems, tools and techniques to the organisation since they know what is best suited to them.

The major disadvantage however is that it is yet to be implemented thus it is yet to be critiqued as well.

Figure 5.1: The Airport Facility Management Framework



(Liyanage & Egbu, 2006)

From the framework presented above it is evident that number of policy and guiding documents relating to AFM will have to be developed. For effective implementation and consolidation, the starting point is having appropriately skilled accountabilities, roles and responsibilities defined. In light of that, the researcher proposes that CAAZ employs the following strategies for the effective execution the AFM

Framework. The strategies are applicable to the all the 3 pillars on which the framework is built upon.

Table 5.2: AFM Framework Implementation Strategy

Strategies			
Issues related to roles and responsibilities	Issues related to guidance documents (policies, guidelines and standards)	Issues related to priority given to FM	Issue relating to lack of resources (availability of staff, cost, implications)
Define accountability Define roles and responsibilities	Develop and review control of AFM policies, guidelines and standards Ensure compliance with policies and guidelines Develop and review service specifications	Ensure AFM is stressed as a vitally important part of corporate strategy	Identify resources Deployment of resources Monitor and evaluate performance Implement corrective action

Implementation of the AFM Conceptual Framework will address all the objectives of the research study.

5.5.2 Objective 2: Evaluation of PM Impact on Effectiveness of Facilities

The Authority should strive to provide for adequate resources which include the sufficient manpower, budget as well as the right tools and technology in this case real time performance management systems. “Workplace leaders cannot focus on the bigger picture with too few resources; they get frustrated and move on if they seem not to make any progress,” was one of the famous quotes of Strategic Management Guru at Africa University.

Proper implementation is key at this point. If the adopted framework is implemented well, then provisions for the right skilled manpower, at the right place and at the right time would be catered for at strategy execution. Funding could as well be dealt with by the major stakeholder through privatization or PPPs.

5.5.3 Objective 3: Evaluation Stakeholder Expectations and Integration into AFM

Provisions for engaging stakeholders are clearly set out in the framework and in the implementation strategy. Accountabilities have to be developed first, followed by guiding documents which could include the Communications Policy, Stakeholder Database etc. Stakeholders are then engaged as per policy provisions. Performance is monitored, evaluated and corrective action implemented.

5.5.4 Objective 4: Major Determinants of Facility Management at CAAZ

This objective sought to establish what the major drivers of FM at CAAZ were. Experience gained by the researcher during the course of the study revealed that in fact all facilities work together towards a unified customer experience. Whilst that was true some facilities were geared towards safety and security which then superseded all else (ICAO, 2019). From that perspective, the Authority needed to give priority to facilities that preserved lives and sovereignty of the state as clearly set out in the Civil Aviation Act [Chapter 13:16].

Spedding & Holmes (1994) concluded that the aim of facilities management should not just be to optimize running costs of buildings but to raise the efficiency of the management of space and related assets for people and processes in order that the

mission and the goals of the firm may be achieved at the best combination of efficiency and cost.

Table 5.2 below is the summary of the AFM framework together with key recommendations.

Table 5.3: Summary of AFM Conceptual Framework

Significant Areas	Key Issues Identified	Key Recommendations
Involvement and integration of different parties	▪ Lack of involvement of key stakeholders ▪ Lack of integration among the parties involved AFM	▪ Involve and work with all stakeholders ▪ Improve communication and coordination
Performance Management(PM)	▪ Lack of performance management	▪ Develop key performance indicators and measures ▪ Identify performance requirements ▪ Develop monitoring and supervision arrangements ▪ Measuring performance ▪ Audit and feedback to staff
Knowledge Management (KM)	▪ Lack of training and education ▪ Lack of knowledge in the control of AFM	▪ Setup training and education programmes ▪ Review training and education programmes ▪ Develop knowledge and skills appropriately to AFM ▪ Knowledge dissemination

(Liyanage & Egbu, 2006)

5.6 Suggestions for Further Research

This study has provided the basis for further research for development of FM frameworks in aviation. Detailed research is needed to determine if there are underlying associations between the chosen business strategy and the nature of facilities management strategies employed in the aviation industry. From literature reviewed, it was evident that there was a gap in FM that is specific to aviation. Further studies are needed in this area to close the gap. The researcher had to rely mostly on literature that related to FM in general.

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APPENDICES

APPENDIX 1: AUREC Approval

AFRICA UNIVERSITY
(A United Methodist-Related Institution)
INVESTING IN AFRICA'S FUTURE

AFRICA UNIVERSITY
RESEARCH ETHICS COMMITTEE (AUREC)

P.O. BOX 1320, MUTARE, ZIMBABWE • OFF NYANGA ROAD, OLD MUTARE • TEL: (+263-20) 60075/60026/61611 • E-MAIL: aurec@africau.edu • WEBSITE: www.africau.edu

Ref: AU881/19 8 April, 2019

Patience Sagonda
C/O CBPLG
Africa University
Box 1320
Mutare

RE: FACILITY MANAGEMENT AT CIVIL AVIATION AUTHORITY OF ZIMBABWE

Thank you for the above titled proposal that you submitted to the Africa University Research Ethics Committee for review. Please be advised that AUREC has reviewed and approved your application to conduct the above research.

The approval is based on the following.

a) Research proposal
b) Questionnaires
c) Informed consent form

- **APPROVAL NUMBER** AUREC881/19
- /19

This number should be used on all correspondences, consent forms, and appropriate documents.

- **AUREC MEETING DATE** NA
- **APPROVAL DATE** April 8 , 2019
- **EXPIRATION DATE** April 8, 2020
- **TYPE OF MEETING** Expedited

After the expiration date this research may only continue upon renewal. For purposes of renewal, a progress report on a standard AUREC form should be submitted a month before expiration date.

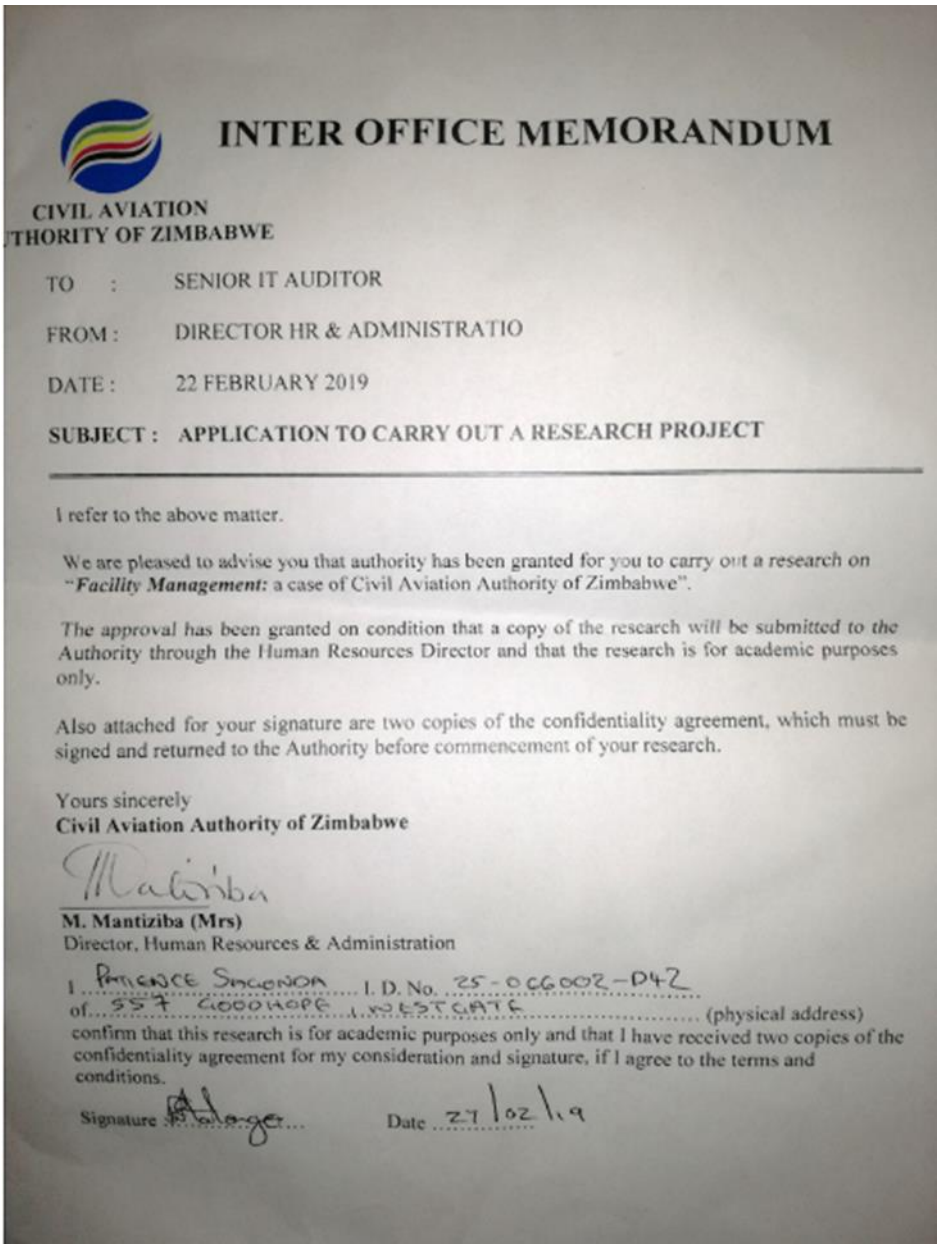
- **SERIOUS ADVERSE EVENTS** All serious problems having to do with subject safety must be reported to AUREC within 3 working days on standard AUREC form.
- **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in the proposal (including changes in the consent documents)
- **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted to AUREC.

AFRICA UNIVERSITY
RESEARCH ETHICS COMMITTEE (AUREC)
08 APR 2019
APPROVED
P.O. BOX 1320, MUTARE, ZIMBABWE

Yours Faithfully

MARY CHINZOU – A/AUREC RESEARCH ETHICS OFFICER
FOR CHAIRPERSON, AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE

APPENDIX 2: CAAZ Approval



CIVIL AVIATION
THORITY OF ZIMBABWE

INTER OFFICE MEMORANDUM

TO : SENIOR IT AUDITOR

FROM : DIRECTOR HR & ADMINISTRATIO

DATE : 22 FEBRUARY 2019

SUBJECT : APPLICATION TO CARRY OUT A RESEARCH PROJECT

I refer to the above matter.

We are pleased to advise you that authority has been granted for you to carry out a research on "***Facility Management:*** a case of Civil Aviation Authority of Zimbabwe".

The approval has been granted on condition that a copy of the research will be submitted to the Authority through the Human Resources Director and that the research is for academic purposes only.

Also attached for your signature are two copies of the confidentiality agreement, which must be signed and returned to the Authority before commencement of your research.

Yours sincerely
Civil Aviation Authority of Zimbabwe

Mantiziba

M. Mantiziba (Mrs)
Director, Human Resources & Administration

I PRUDENCE SINDENDA I. D. No. 25-066002-D42
of 557 GOODHOPE WESTGATE (physical address)
confirm that this research is for academic purposes only and that I have received two copies of the confidentiality agreement for my consideration and signature, if I agree to the terms and conditions.

Signature Prudence Date 27/02/19

APPENDIX 3: Informed Consent Guide

INFORMED CONSENT GUIDE

Identification

My name is *Patience Sagonda*, an Executive Masters of Business Administration Student final year student from AU. I am carrying out a study on Facility Management and am kindly asking you to participate in this study by answering a few questions in this guided interview and/or filling in the attached questionnaire.

What you should know about the study:

Purpose of the study:

The purpose of the study is to investigate the challenges surrounding FM at the Authority. You were selected for the study because vast knowledge you possess in CAAZ Facility Management as well as your institutional memory.

Procedures and duration

If you decide to participate, I will share the findings /outcomes of the research study. It is expected that this will take about 6 months.

Risks and discomforts

1. This will consume some of your valuable time no matter how minute
2. Taking the time to answer maybe an inconvenience to your schedule

Benefits and/or compensation

The research could benefit the Authority by:

1. Provide understanding on the FM issues at the Authority and recommend possible solutions towards sustainable FM.
2. The research will contribute towards the fulfilment of the Executive Masters in Business Administration required by the university as well as to fully master the research skills needed for further researches in various industrial fields.
3. It would also contribute to a body of literature that assist the scholars and other students of the university who might want to carry out research on the similar preference topics, since it will provide the necessary applicable information, or simply to reinforce research findings by other researchers in the subject of facility management.

Confidentiality

Any information that is obtained in the study that can be identified with the participant will not be disclosed without their permission. Names and any other identification will not be asked for in the questionnaires.

Voluntary participation

Participation in this study is voluntary. If participant decides not to participate in this study, their decision will not affect their future relationship with Civil Aviation Authority of Zimbabwe. If they chose to participate, they are free to withdraw their consent and to discontinue participation without penalty.

Offer to answer questions

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

Authorisation

If you have decided to participate in this study please sign this form in the space provide below as an indication that you have read and understood the information provided above and have agreed to participate.

---------- ----------

Name of Research Participant (please print) Date

Signature of Research Participant or legally authorised representative

If you have any questions concerning this study or consent form beyond those answered by the researcher including questions about the research, your rights as a research participant, or if you feel that you have been treated unfairly and would like to talk to someone other than the researcher, please feel free to contact the Africa University Research Ethics Committee on telephone (020) 60075 or 60026 extension 1156 email aurec@africau.edu

Name of Researcher Patience Sagonda

APPENDIX 4: Questionnaire

Introduction

The purpose of this questionnaire is to solicit the perceptions, views, opinions and experience on facility management at the Civil Aviation authority of Zimbabwe in partial fulfillment for the degree of Executive Masters of Business Administration by Africa University.

Participation in this study is voluntary and will be treated as highly confidential. Participant's identity information is not required unless the participant is willing to be included in any follow-up interviews that may be carried out. Participants are free to opt out of the study at any given point in time or answer any specific question if you feel like doing so you are assured that your participation in this study is voluntary and confidential. Any information that will reveal or establish your identity will not be requested, unless you are willing to be contacted in individual follow-up interviews. Participants' confidentiality will be guaranteed and you are free to opt out of the study or answer any specific question if you feel like doing so. As such, you are requested to willingly and voluntarily participate in this research. The information provided will be utilised solely for the purpose of this study alone and not for commercial purposes. The questionnaire will take between 15-20 minutes to complete.

Part A

Please tick in the appropriate box or boxes.

1) Gender:

Male	
Female	

2) Age in years:

Less than 25	
26-34	
35-44	
45-54	
Above 54	

3) Marital status:

Single	
Female	

4) Highest educational qualification:

Certificate	
Diploma	
Under-graduate Degree	
Master's Degree	
Other	

5) Years worked in the organisation:

Below 1	
1 - 5	
6-10	
Above 10	

6) Department worked in:

……..

7) Position in Department:

Executive Manager	
Manager	
Supervisor	
Employee	

Other	

KEY:

SD – Strongly Disagree

D - Disagree

N - Neutral

A - Agree

SA – Strongly Agree

Part B:

1. Knowledge and Performance Management	**SD**	**D**	**N**	**A**	**SA**
My organisation has a complete organizational setup on maintenance & facilities management					
My organisation has a framework, policies and procedures on facility management					
My organisation appreciates the relationship between facility management and core business					
My organisation has trainings programs to educate management to be fully conversant with aviation systems and airport management					
My organization has a succession plan in place for facilities management					
My organisation has full information on the performance of our outsourced maintenance contractors and the assets/facilities					
My organisation has a holistic maintenance which focuses on preventive maintenance than corrective maintenance (repair works)					
My organisation keeps track of the cost of its assets/facilities throughout their life cycle – from acquisition/purchase, operation, maintenance to make informed upgrading/disposal / total replacement decisions					
My organisation has systems in place to measure real time performance of facilities and also benchmarks facilities against competition					
My organisation has a complete organizational setup on maintenance & facilities management					

2. EFFICIENCY INDICATORS	SD	D	N	A	SA
Security					
Grounds management					
Janitorial management					
Health and safety					
Energy Management					
Solid waste management					
Liquid waste management					
Disaster Management and emergency coordination					
Environmental Control					
Maintain building fabric					
Communication management					
Space planning					
Document flow and control					
Call centre management					

3. Stakeholder Management	Yes	No
Existence of Stakeholder Database		
Stakeholder Representation in Projects		
Preconstruction fora		
Comprehensive Communications Policy		

Thank you for your time