Cape Peninsula
University of Technology

DEVELOPING A PROJECT MANAGEMENT MODEL FOR A UNIVERSITY OF TECHNOLOGY IN SOUTH AFRICA

by

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DECLARATION

I, Thandiswa Nomazima Madadasana, declare the content of "**Developing a project management model for a university of technology in South Africa**" represents my own work

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Signed   Date

ABSTRACT

Project Management is a discipline which has gained recognition in many organisations across many industries. While project management has found relevance in many industries, this research has identified a lack of application of project management processes in administrative activities in universities in South Africa. An empirical study was carried out at a university of technology where staff members in the registry department, which handles student life cycle activities, were used as subjects. Both quantitative and qualitative data were collected through the use of online questionnaires and semi-structured interview questions. All 38 employees that make up the registry department were included in the study. Statistical tables were used to present the quantitative data, and thematic analysis was employed to analyse qualitative data. Findings showed that there were many errors in processing applications, registration, assessments and handling graduations. Employees enter the applications phase without any briefing on how to handle applications or what to expect in the process. For registration, some employees do not know which courses and programmes have online registration services and which ones require manual registration. A lack of structured, coordinated communication channels between the registry staff and academic departments during assessments was cited as the main challenge leading to common errors like incorrect information on question papers and answer sheets and late submissions of examination papers. Errors at graduation could be as severe as awarding a qualification to those that would not have passed the programme. The study has developed a projectisation named the Registry projectisation model. This is a solution that this study recommends to solving the many challenges faced in processing activities of the student life cycle in the university's Registry unit.

ACKNOWLEDGEMENTS

DEDICATION

I would like to dedicate this dissertation to my only son, Ndumiso Junior Madadasana.

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ABBREVIATIONS AND LIST OF ACRONYMS

PMBOK	Project Management Body of Knowledge
PM	Project Management
PMI	Project Management Institute
CPUT	Cape Peninsula University Of Technology
AGC	Assessment and Graduation Centre
ARC	Applications and Registration Centre
RPM	Registry Projectisation Model
KPI	Key Performance Indicator
WBS	Work Breakdown Structure

CONTENTS

CHAPTER ONE: INTRODUCTION

1.1   Introduction

In our drastically changing higher education environment, it is 'not business as usual', and it is time for academic administrators to re-think best practices and how to work cleverer with fewer resources and to embrace the tools available that will enhance and optimise administrative practices through projectising. Reflecting on the need to conform to changing times in university administration, Peter Drucker observed that "The most important area for developing new concepts, methods, and practices will be in the management of society's knowledge resources-specifically, education and health care, both of which are today over-administered and undermanaged." (Drucker, 1997).

Administrators form part of the key personnel in a university's functioning as a university's core business is to manage the student life cycle. The student life cycle has stages starting at the student recruitment stage up to the graduation stage. In-between these stages are application, selection, admission, registration, orientation and academic activities such as teaching and learning. All the stages mentioned above require administrators at each stage.

In a projectised environment, these stages would be regarded as individual projects whereby administrators are regarded as team members dealing with each project under the student life cycle portfolio. Project Management Body of Knowledge (2016) states that projects have a time limit. A project has a clearly defined start and end date, allowing project teams to move on to the next project. For example, taken as a project, the application process would have a start date and an end date. Upon project completion, project teams move to the next project, "registration".

Following this phenomenon, "project application" should not, in essence, interfere with "project registration". It is argued in this study that if projectised, the university administration would be better managed and improved.

1.2   Statement of the Research Problem

This study argues that it is due to delays in processing applications, poorly planned registration processes, and incorrectly identifying graduands. While some activities have been automated in some universities, many processes in the student life cycle are manual

and require proper project management. However, some South African universities are changing slowly in terms of adopting modern methods of handling student life cycles. From this background information, the problem statement which emerges is:

Inadequate processes in the student life cycle from application to graduation, have led to incomplete student records, thereby inconveniencing students in many ways.

1.3   Research Aim and Objectives

The study explores the benefits of projectised university processes in the registrar's division. Recommendations which will be availed to the university in the study shall be the practical contribution.

The study aims to determine how the student life cycle administrative processes can be improved by following a projectised model. The following are sub-objectives:

- To identify critical processes in the student life cycle
- To investigate the current unprojectised processes work
- To develop a model to improve university administrative systems through projectising activities of the student life cycle.

1.4   Research Question and Sub-Questions

From the problem statement, the main research question that emerges is:

How can a projectised university administration environment improve processes involving student life cycle?

In order to answer the main research question, some critical sub-questions have been developed:

- What are the critical processes in the student life cycle in a university?
- How are the current university student life cycle processes carried out?
- What model can be proposed to improve university administrative systems through projectising activities in the student life cycle?

The summary of research questions, methods and objectives is shown in Table 1.

Table 1: Research Questions, Methods and Objectives

Research Question	Method(s)	Objectives
What are the critical processes in the student life cycle in a university?	Literature analysis, Interviews	To identify critical processes in the student life cycle
How are the current university administration processes carried out?	Questionnaires Interviews	To investigate how the current unprojectised processes work
What model can be developed to improve university administrative systems through projectising activities in the student life cycle?	Design techniques	To propose a model which incorporates projectisation of university administrative processes which start with applications and end with graduation

1.5 Rationale and significance of the study

This research's rationale is based on the interest of the researcher. The researcher is a university administrator whose observations on her job have led to academic interest in her research. The researcher observed that the recurring challenges in student admissions, registration and graduation needed a model that, when followed, can reduce the impact of those challenges

University administration functions must be projectised. Project management processes apply globally and across industry groups but have not penetrated the higher education institutions, hence the proposed study to projectise. According to PMBOK Guide (2013), "Good practice means that there is general agreement that the application of project management processes has shown to enhance the chances of success over a wide range of projects. Project managers and their teams would carefully address each process and its inputs and outputs and determine which are applicable to the project they are working on".

1.7 Thesis Structure

The thesis is structured as follows:

Chapter One discusses the study background, problem statement, research questions, and goals achieved by the study.

Chapter Two presents the literature review, which helped the researcher answer the study's first objective. This chapter also discussed the importance of projectising university academic administration processes.

Chapter Three presents the research design and the approach taken. The chapter discusses the research philosophy, case study research design, motivation for using questionnaires and interviews, the sampling technique, study population, data collection procedures, and data analysis tool.

Chapter Four presents data analysis and a discussion of the results.

Chapter Five discusses the summary and deductions. The chapter summarises the previous chapters of the work and explains the significance and contribution of the study, its limitations, and recommendations for future studies.

CHAPTER TWO: LITERATURE REVIEW

2.1   Introduction

This chapter discusses university administration and the relevance of academic administration. The student life cycle is also discussed as well as arguments to support the need for projectising activities of the university administration processes. The project management concept is also discussed, leading to the development of the conceptual framework for the study.

2.2   Academic Administration

It has become evident that many South African university administrators battle with these processes each year. It is argued in this study that if projectised, the university administration would be better improved. According to PMBOK (2016), projects have a time limit. For example, taken as a project, applications in the registry department would open on 1 May each year and close on 30 August of the same year. The application evaluation process may begin on 1 September and end on 31 October. Upon completion of the project, project teams move to the next project, "Registration". The following functions are performed in the university registrar's department in universities of technologies. Sub-sections 2.2.1 to 2.2.3 is information which is contained in the Registry Handbook of the institution in this study.

2.2.1 Application and admission

- Receipt and processing of application forms, manually and online
- Checking for accuracy and completeness
- Capturing of applicant's information on the system
- Capturing the applications results on the system
- Sending of bulk SMS/responses to applicants
- Capturing the admission status on the system
- Generation and uploading of responses to applicants on the institutional website
- Production and constant review of the application forms
- Record keeping of student application information
- Control of access to the applications system

2.2.2 Registration services

- Testing of the online registration system
- Productions of the registration guide
- Production of registration regulations
- Review of the registration forms
- Capturing of academic information on the system
- Record keeping of student registration information
- Maintain student records of current and former students
- Update student biographical information
- Issuing proof of registration

2.2.3 Assessment and Graduation

- Produce and maintain academic records for current and former students
- Process exemption and recognition credits
- Update student academic records, including results
- Manage and administer final assessment
- Manage and administer moderation process for exit subjects and final assessments
- Manage and administer final assessment timetabling
- Manage and administer final assessment invigilation
- Capturing of board lists from faculties
- Capturing of promotion codes on the system
- Capturing the qualification status
- Issuing of qualifying letters
- Generation and issuing of letters to graduating students
- Organise graduation ceremonies in partnership with related institutional departments

As observed by Giovanne and Emerson et al. (2014), and with reference to the functions mentioned above, university administrators are not developing managerial theories of their own and should have a culture of observing performance models to improve their administration. According to Santiago, Carvalho, Amaral and Meek (2006), "traditional forms of academic management are considered ineffective and obsolete".

It is, therefore, empirical that the functions do not only end up as listed functions but with more essence as advised (in a projectised context) in the schedule below. Including all functions, Knowledge Performance Indicators (KPI) should be clearly indicated as per the table below. Perhaps indicating team members responsible for each KPI will ensure that the scope of work is covered.

Table 2: Application and admission Function

Activity	KPI
Receipt and processing of application forms, manually and online	Date of Application and process completion
Checking for accuracy and completeness	Time in hours (per batch)
Capturing of applicant's information on the systems	Turnaround time per application
Capturing the applications results on the systems	Turnaround time per application
Sending of bulk SMS/responses to applicants	Date of SMS dispatch
Capturing the admission status on the systems	Turnaround time per application
Generation and uploading of responses to applicants on the institutional website	Time and date
Production and constant review of the application forms	Continuous and date stamped
Record keeping of student application information	Electronic location [address] of each record
Control of access to the applications systems	Secure password protocol

Table 3: Registration Services Function

Activity	KPI
Testing of the online registration system	Date of testing and report
Productions of the registration guide	Time frame in days
Production of registration regulations	Time frame in days
Review of the registration forms	Time frame in days
Capturing of academic information on systems	Date and turnaround time
Record keeping of student registration information	Electronic location [address] of each record
Maintain student records of current and former students	Electronic location [address] of each record
Update student biographical information	Timeframe in days/hours
Issuing proof of registration	Timeframe in days/hours
Testing of the online registration system	Date of testing and report

Table 4: Assessment and Graduation

Activity	KPI
Produce and maintain academic records for current and former students	Timeframe in days/hours
Process exemption and recognition credits	Date of receipt & completion thereof
Update student academic records, including results	Timeframe in days/hours
Manage and administer final assessment	Electronic location of each record
Manage and administer moderation process for exit subjects and final assessments	Electronic location of each record
Manage and administer final assessment timetabling	Electronic location of each record
Manage and administer final assessment invigilation	Timeframe in days/hours
Capturing of board list from faculties	Timeframe in days/hours
Capturing of promotion codes on the system	Timeframe in days/hours
Capturing the qualification status	Timeframe in days/hours
Issuing of qualifying letters	Date and turnaround time
Generation and issuing of letters to graduating students	Date and turnaround time
Organise graduation ceremonies in partnership with related institutional departments	Timeframe in days/hours

2.3   Student Life Cycle Analysis

As the student life cycle stages are analysed, it is argued in this study that there exists a cumulative challenge for universities in South Africa to undergo institutional adaptation to changing environments (Cameron and Tschirhart, 1996; Gumport and Pusser, 1997). The institutional adaptation argued for in this research is for administrators to projectise each stage of the student life cycle. The concept of project management can be understood in the context of a projectised organisational structure. Usmani (2019) defines a projectised organisation as one which is "dynamic and adaptive; otherwise, its survival will be difficult". However, once adopted, it will make the administrator's work life easier. Without projectisation, administrators miss each student's life cycle stage target, derailing and destabilising academic projects.
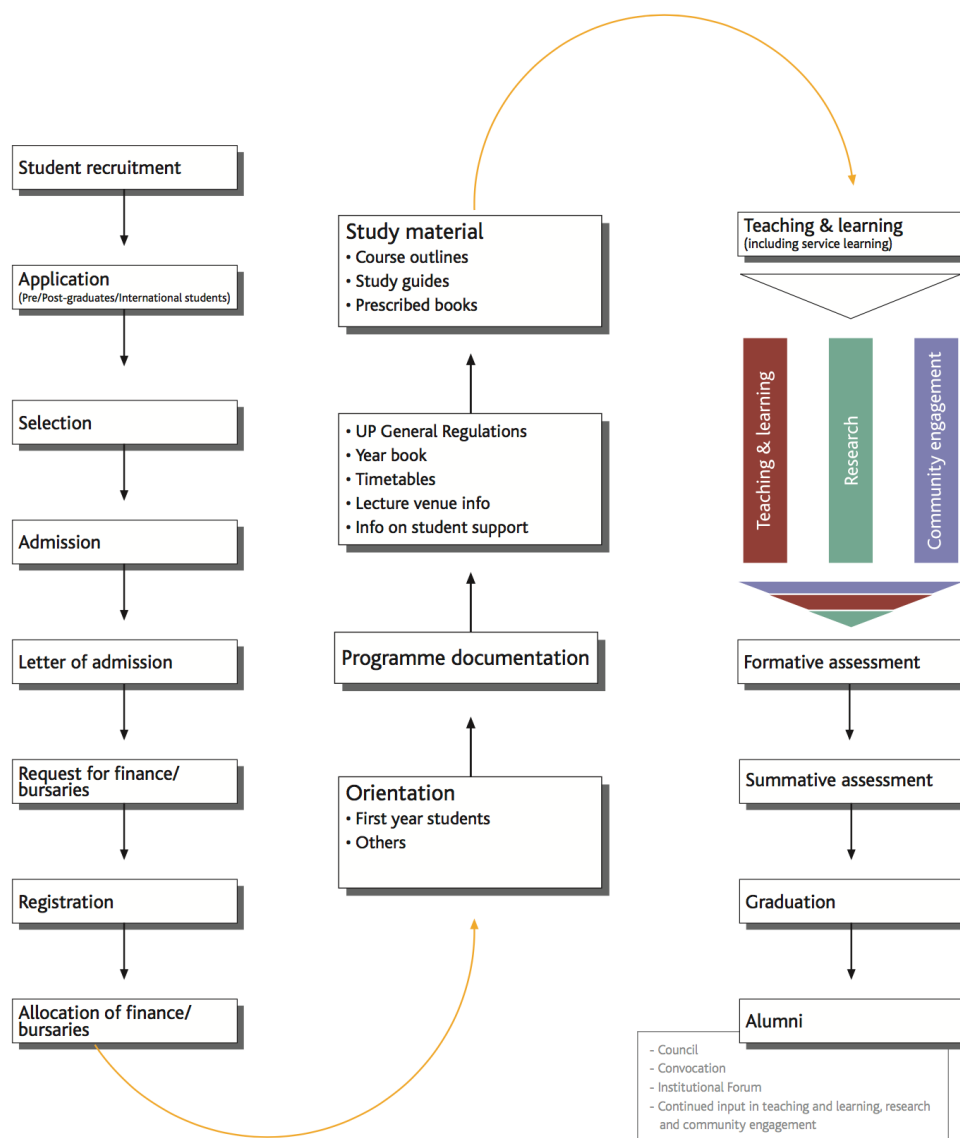
Figure 1: Student Life Cycle (Source: University of Pretoria, 2013)

Figure 1 shows a general student life cycle documented by the University of Pretoria in South Africa. However, each university may have a slightly different process. In this study, a university of technology was considered as the case. Only the stages in the student life cycle, which are processed in the university's registry division, are foundational for this study. The study aims to investigate how projectising administrative activities involving student life cycles can benefit universities. The following stages that the university's registry division undertakes are considered in this study: student recruitment, application, selection, admission, registration, mark computation, results in publication and graduate identification. The university student life cycle commences at student recruitment.

2.4   Rationale for projectising academic administration processes

According to PMI, "project management is the application of knowledge, skills, tools, and techniques to a broad range of activities to meet the requirements of a particular project." Burke (2013) defines a system as an "integration of interrelated parts or components that function together to achieve a common purpose". Therefore, a systems approach in this study will have to consider all projects as holistic. In addition, Burke continues to argue that "in a project context, a project methodology is a system of interlinked phases that can function separately to produce deliverables of each phase, and function together to produce the project deliverable to achieve the project objectives" (Burke, 2013). In a projectised environment these phases would be referred to as process groups called "initiation, planning, execution, monitoring and evaluation and closure phase".

Figure 2: Phases of Project Cycle

These phases are explained in detail below:

Project Conception and Initiation phase

During the project initiation phase, the scope of work to be done will be defined. This involves performing stakeholder analysis, identifying and documenting high-level risks, assumptions and constraints such as during the registration period. In a University academic administration registry unit, guidance will be given as to what steps will be taken should there be unrest such as that experienced by many South African Universities during the "Fees must fall" student protest between 2015 and 2016. The most important part of this phase is that of developing the Project charter. The PMBOK (2013) defines a Project Charter as "a document, containing information about the project and is issued by the project initiator or sponsor that formally authorises the existence of the project and provides the project manager with authority to apply organisational resources to project activities". It sets the terms of reference as to how the project will run. According to Enani (2015), a "project charter is a document, a single source of knowledge regarding the project planning and initiation". It also explains the boundaries, irrespective of the type of project management mode that will have been employed. It serves as a guide in the process of continuing with the project.

For the purpose of this study, a Project Charter document would include the project name, project sponsor, project manager, project plan, the background (the history leading up to the reasons for this project), institution vision and value statements, stakeholders, the scope of work to be done, the execution strategy to name a few. This most important document will serve as a guide during the project lifecycle. Once approved by all in the project, one cannot change nor amend without agreement from all parties involved. According to Heldmann (2011), quoted by Enani (2015), the project cannot commence or advance without a Project Charter. Therefore, the Registry unit would be advised that before commencing the registration project, the project initiator will have to develop what will be referred to as the 'Registration Project Charter'. This will lead the project team to the next project phase, called the planning phase.

Project Definition and Planning phase

During this phase, a start-up meeting will convene, informing all stakeholders of the project vision, objectives, scope of the project and deliverables and the project plan. Rory (2013). The first step in this phase is to assess the detailed project requirements. This involves providing background leading up to the reasons for this project. The Institution's vision and

value statement will assist in guiding this process. The vision and objectives of the project itself will be aligned with the institution's vision. In brainstorming and planning sessions, deconstructing the scope of work to be done will be to establish project deliverables. In a projectised environment, a work breakdown structure (WBS) technique is used to deconstruct the scope of work. PMBOK 6th Edition (2017) defines the process of "subdividing (deconstruction) project deliverables and project work into smaller, more manageable components". This process will assist in ensuring that the work to be done is easier to estimate, plan and assign to a responsible team member or department for completion. During the brainstorming and planning session, the project manager may make use of the special project management technique known as the Gantt Chart. The PMBOK 5th edition (2013) defines a Gantt Chart as "a bar chart of schedule information where activities are listed on the vertical axis, dates are shown on the horizontal axis, and activity durations are shown as horizontal bars placed according to to start and finish dates". The Gantt Chart may seemingly be a simplified document, but the bar charts contain a wealth of information. It lists the activities and flow of work to be done from the exact time activities start and finish as per the definition and expectations of a project. A project is a temporary endeavour with a defined start and end (PMBOK, 2013). Gantt Charts simplify and inform team members of the work to be done. This will inspire teams to get on with the work to be done, leading to the execution phase.

Project Launch or Execution phase

This is usually referred to as the action or implementation phase. Team members will be expected to execute the tasks as defined in the project plan. In reviewing the current process and functions listed in tables 1, table 2 and table 3 of this document, in a project management context, these functions, according to Burke (2013), refer to a scope of work to be done. Scope management is one of the knowledge areas in managing the process. Burke further emphasises that this is to "enable the Project manager to ensure that the project's scope includes all the work required to achieve the project objectives" (Burke, 2013:150). Failure to accurately interpret the scope of work as set out in the project plan will produce misleading and might lead to unintended consequences impacting the project time, cost and quality. It is therefore beneficial to project team members that they understand project characteristics and all features relating to the project scope management for them to be able to effectively manage the entire process. According to PMBOK 5th edition (2013), the scope management plan, being the most important aspect to consider, involves a component of the project plan that explains how the project is defined, developed,

monitored, controlled and verified. Burke (2013) refers to breaking down the scope of work referred to as Work Breakdown Structure (WBS). WBS is the breakdown structure approach to subdivide the work to make the deliverables into more easy and more manageable tasks for team members. The project manager will be able to easily monitor and control the process.

Project Performance and control phase

The Project manager using the WBS will be able to keep track of activities to be done by team members, measure the progress against targets, and identify risks without compromising the quality. According to Giovanne and Emerson et al. (2014), Higher education institutions should identify best practices through project management, and project monitoring and controlling should be very clear. Project Management Institute through PMBOK, emphasises these control measures by stating that project managers should be able to measure the performance of the project team by employing relevant tools and techniques. The project manager should also be able to apply tools and techniques to perform appropriate corrective actions while always being cognisant of the need to communicate with all relevant stakeholders. During this phase, the Project manager ensures that project deliverables conform to quality standards through testing and inspection to satisfy customer requirements.

Pritchard (2015) refers to risk management as "a method of managing that concentrates on identifying and controlling areas or events that have potential of causing unwanted change". Risks are events that may happen to a project. It is therefore imperative to update the risk register by identifying any possible new risks, assessing existing and old risks, and determining and implementing relevant response actions to manage, control and minimise the impact of those risks on a project. It is important to communicate status changes at any project stage to stakeholders and get their input and feedback. This ensures that the project aligns appropriately with business requirements and needs. In this context, these needs would be the university's registry division needs.

Closure phase

According to PMBOK® Guide 5th Edition (2013), formally closing the project activities ensures that all the work has been completed. The project team or project manager should secure final clearance of all project deliverables from the project sponsor. This confirms that the project was delivered according to the agreed scope, time, and budget. All deliverables

were met. Reports and all project closure-related documents should be distributed to provide the final project status to all stakeholders. It is important to collate lessons learned through a comprehensive project review. Equally important is to archive all material and documents to retain and improve organisational knowledge. Archiving is also important for compliance with various statutory requirements, which advise and monitor that data is available for future use in other projects and for audit purposes.

2.5   Value of Project-Based Management

This study proposes a new paradigm for managing student cycle activities in the registry unit of universities. This paradigm follows project-based management where organisations "… adopt project-based ways of working; internal arrangements must reflect the strategic decision to be project-oriented…" (Miterev et al., 2017:480). Therefore, project-based management is regarded as an innovation which, in this study, promotes the re-design of the activities of units in the registry units of universities to achieve goals of scope, time and cost.

Literature reports widespread failure of business strategies in achieving objectives and hence the need to seek alternative business models. (Miller, 2020). Project management models have been developed over time as a business solution to these challenges. Some models belong to the traditional approaches, while others are modern methodologies. Organisations that invest in PM must be assured of a concrete return. According to McElroy (1996), proper adherence to project management methodologies has greatly succeeded in many projects. (ibid) emphasises that many organisations started adopting project management practices after observing considerable success in the organisations that had implemented the strategies. Perminova et al. (2008) note success in the private sector, aerospace, and defence. Organisations in industries such as manufacturing, production, accounting, auditing, education, and marketing have all reported successes in implementing project management principles. For many companies in different industries, project-based management has become the preferred solution to managing projects no matter the size and this is due to project success becoming embedded in the organisation's success (Meredith et al., 2017).

In Figure 2, Martinsuo et al. (2006) identified drivers who bring success to project-based management. They found that external pressure and internal complexity are the main factors that should be considered when adopting a project-based management approach. The study

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by Martinsuo et al. (2006) shows that improvement of project culture, which is a benefit has a direct linkage to the two drivers with the help of some mediating variables, which are depth of project management adoption, the local success of introducing project management and degree of process change. This study seeks to introduce project management as a tool to improve registry activities in a university. Hence the same drivers identified by Martinsuo et al. (2006) play a significant role.
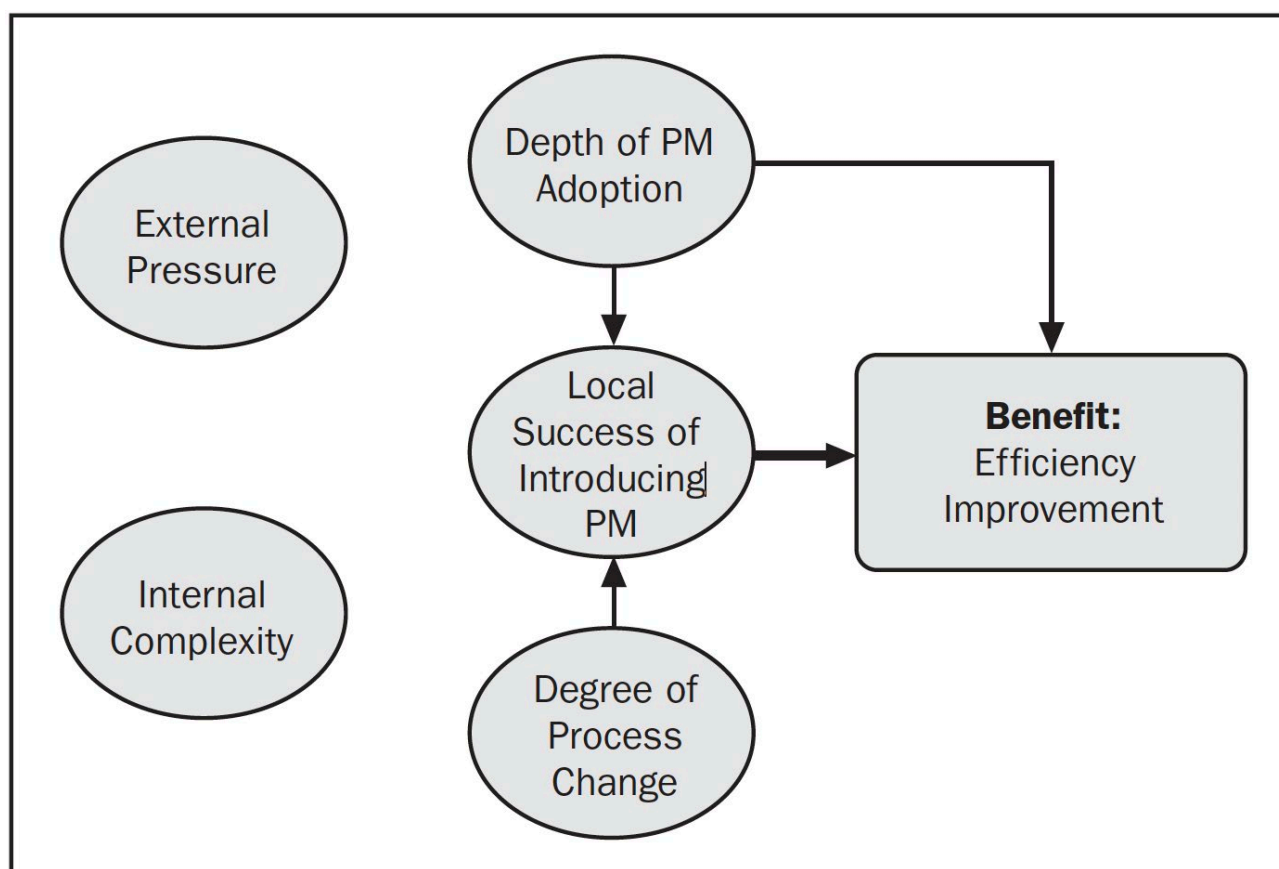
Figure 3: Factors contributing to efficiency improvement as a benefit from introducing project-based management (Source: Martinsuo et al. (2006))

2.6   Conceptual Framework

Coalsceing the underpinning theoretical student life cycle framework (Figure 1) and Figure 2 by Martinsuo et al. (2006), the researcher has evolved a conceptual framework (Figure 3) which will guide both the data collection and data analysis.

As depicted in Figure 3, the activities that this study will examine are applications, selection, admission, registration and graduation.
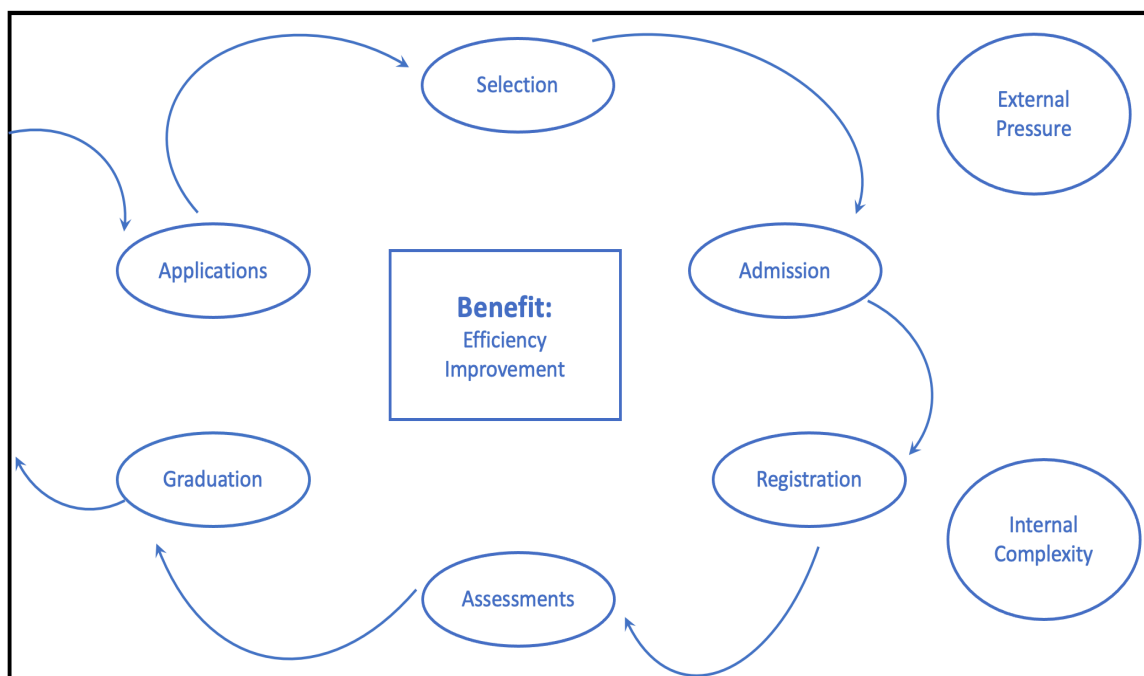
Figure 4: Conceptual Framework

2.7   Chapter Summary

In this chapter, literature was reviewed on academic administration. The focus was on the South African academic administration landscape. This study's academic administration process includes student selection, admission, registration, assessment and graduation. The argument suggested in the literature review was to handle the academic administration processes as projects. This led to reviewing the literature on project management as articulated by PMBOK. The common five phases in project management were reviewed. These include project initiation, project definition, project execution, project control and project closure phases. A conceptual framework which guided the development of research instruments was developed in the literature review chapter.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

In the previous chapter, the researcher reviewed scholarly literature on project management as well as university administration activities. This chapter focuses on the research design and methodology that the study followed. This chapter is structured as follows: firstly, the empirical setting of the study is presented, followed by the discussion of the research philosophy, after which the research approach, research population and sample, data collection, research validity, research reliability and ethical considerations are discussed. Data analysis techniques are presented next before the chapter ends with a summary.

3.2 Empirical Case

The institution in this study is a university of technology in South Africa. In this university, the Registry division is responsible for academic administration, regulatory framework and compliance. The Division comprises two sub-divisions: The applications and Registration Centre (ARC) and the Assessment and Graduation Centre (AGC). Each of these sections is led by a Manager and has a total of about 38 staff members. The Registry division services 6 faculties which are:

- Faculty of Business and Management Sciences
- Faculty of Engineering and Built Environment
- Faculty of Informatics and Design
- Faculty of Applied Sciences
- Faculty of Education
- Faculty of Health and Wellness

Each faculty has a Faculty Office, an extension of the registry division at the faculty level. This study considered activities of the academic administration as carried out by the Registrar's department. The department works with the faculty offices of the six faculties.

3.3 Research Philosophy

Research philosophy is a belief that deals with the source, nature and development of knowledge (Bajpai, 2011). Philosophical differences in different studies are based on the

nature of the study and the collected and analysed data. Each research philosophy is explained by a paradigm, a framework made up of assumptions of ontology, epistemology, methodology, and methods (Holden & Lynch, 2004). Ontology is a researcher's understanding of reality, while epistemology is the researcher's understanding of how knowledge should be acquired about that reality. Methodology deals with practical processes and methods of gathering data about reality and analysing the data.

Three common research philosophies are interpretivism, positivism and critical realism (Bajpai, 2011), which are presented as follows:

Interpretivism. According to Creswell and Creswell (2018), the interpretivist paradigm holds that reality is multi-layered and complicated, with various interpretations for a single phenomenon. This philosophy is suitable for qualitative research and is founded on the theoretical perspective that reality is fluid and can be negotiated within social settings, cultures, or relationships with other people. It is argued by Angen (2000) that the legitimacy of interpretive philosophy is questionable as it does not undergo the rigorous methodological criteria measures followed in the positivism paradigm.

Positivism. According to Antwi and Hamza (2015: 218), positivist philosophy is a dominant philosophy that generates knowledge through observation and experiment. Positivism depends on quantifiable observations that lead to statistical analyses. It "comprises discrete, observable elements and events that interact in an observable, determined and regular manner" (Bajpai, 2011).

Critical Realism. The third common philosophy is critical realism. Roy Bhaskar established the critical realism philosophy in collaboration with other social theorists. Critical Realism, according to Gorski (2013:659), "… is good for research studies because of its flexibility in allowing researchers to include general laws without abandoning the original explanation".

The interpretivism philosophy was adopted to explore the possibility of projectising the university's administrative processes in this study. This is chosen because, with this philosophy, what is considered valid or true is often negotiated and can be diverse and multiple.

3.4   Research Method

The research takes a mixed-method approach. According to Wisdom and Creswell (2013), the term "mixed methods" refers to an emergent methodology of research that advances the systematic integration, or "mixing," of quantitative and qualitative data within a single investigation or sustained program of inquiry. Saunders explains qualitative research as "an interactive way of collecting data, and it is usually associated with interpretive and critical paradigms" (Saunders *et al*., 2009:151). In a qualitative study, the objectives generally focus on extracting and interpreting the meaning of experience (Bogdan & Biklen, 1998; Denzin & Lincoln, 1994; Merriam, 2001).

A quantitative research method is a method that measures the number of responses and is suitable for phenomena that can be presented in terms of figures (Kothari, 2004). According to Bhandari (2021), "quantitative research is the process of collecting and analysing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalise results to wider populations".

This study has selected a mixed method approach because the data collected comprised both qualitative and quantitative. Qualitative data were the views, perceptions and suggestions of administrative staff. They also provided quantitative data relating to processes in the registry department.

3.5   Research Design

The purpose of this study is to explore challenges faced by the Academic administration in executing their tasks. A case study of the registry processes at the selected university will be the case study. The higher education institution's registry processes will be assessed and focus particularly on changing the higher education environment and for academic administrators to re-think best practices and how to work with fewer resources and embrace the tools available that will enhance and optimise administrative practices through projectising.

According to Benbasat et al. (1987), case study research is suitable when the "experiences of the actors are important, and the context of the action is critical". According to Yin (2003), a case study design should be considered when the focus of the study is to answer "how" and "why" questions. In this study, registry personnel will be required to first describe the individual processes and explain why they are carried out the way they are.

3.6   Data Collection

The personnel involved in the selected institution's student life cycle at the registry department are 38. Between ARC and AGC, the numbers were 23 and 15, respectively. Sampling refers to selected items used for the field of enquiry. All 38 employees that make up the registry department were included in the study. Hence, the Complete Enumeration Survey Method was used as a sampling method to select participants for this study. The Complete Enumeration Survey Method is where each item in the population is included in the data-collection process.

Questionnaires and interviews are often used together in mixed-method studies. (Brookhart & Durkin, 2003; Lai & Waltman, 2008). Questionnaires and interview questions were administered through Google Forms. One set of questionnaires was sent to ARC and the other to AGC. Respondents received Goggle Form links in their emails. The design of the instruments was guided by the conceptual framework presented in Chapter Two.

3.7   Data Analysis and Interpretation

Mixed method data is normally presented separately as qualitative and quantitative. In this study, quantitative data were presented using descriptive tables, while the thematic analysis method was used to analyse qualitative data. Descriptive tables were generated using the SPSS (Statistical Package for the Social Sciences) software. SPSS is a common software program used by researchers in various disciplines for quantitative analysis.

Thematic analysis is a method for studying qualitative data that examines a data set for repeating patterns, understanding them, and reporting them (Braun & Clarke 2018). According to Gray (2014), thematic analysis is a powerful but flexible tool for assessing qualitative data that may be used from a wide range of epistemological perspectives. Nowell et al. (2017) describe a theme as a 'patterned response or meaning' derived from the data that informs the research question. In this study, the themes which emerged from the data were given names by the researcher. Extracts of data from respondents were cited for each theme to explain how the theme was developed.

3.8   Validity and Reliability

In order to acquire valid and reliable data, a mixed method approach was employed to collect data. According to Ivankova, et al. (2018:980), "researchers use mixed methods research when they collect, analyze, and integrate both quantitative and qualitative data within a study or program of inquiry to generate conclusions that are more credible or convincing". Ivankova, et al. (2018), also argue that justifiable conclusions are reached when both quantitative and qualitative data sets are analysed in the same study providing contextual understanding of the same phenomenon. In order to maximise validity and reliability of findings in this study, the focus was on collecting both qualitative and quantitative data from lived experiences of all registry employess in the selected university.

Another factor that contributed towards towards high validity and reliability of findings in this study is the use of the Complete Enumeration Survey to collect data. According to Yoshino (2021), the advantage of the Complete Enumeration Survey is its accurary as it collects data from the entire set of participants. All employees in the registry department that are involved in the activities of the student life cycle were data collection participants.

3.9   Ethical Considerations

For the purpose of this study, the rights and interests of anyone affected by the carrying out of this study were safeguarded. Furthermore, in this study, the informed consent of the subjects was obtained. Firstly, the registrar and managers of AGC and ARC gave consent to data collection. Secondly, individual employees in the registry department consented to provide data. The university issued an ethical clearance certificate through the respective faculty. The researcher ensured that the study was carried out in line with the ethical requirements laid down by the university in the study. The researcher ensured that respondents would not be deceived or harmed and that they were fully aware of what they were participating in. All employees that formed part of the respondents were allowed to withdraw from the process anytime. Collected data has been kept and protected according to the data management policy of the university.

3.10   Chapter Summary

In his chapter, the research design and methodology for the study were discussed. Firstly, a brief overview of research philosophies which are common to social science research was

presented. The researcher also articulated the rationale for selecting the interpretivist philosophy. An overview of the research method and design was then presented. Including the reasons for selecting the mixed method approach. The methodology was outlined, followed by the rationale for selecting the Complete Enumeration Survey Method. Tools for data collection were presented and explained, and unit of analysis and data analysis methods were adopted. The importance of ethical considerations in research, particularly for this study, was presented at the end.

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1   Introduction

Following the discussion of the research design and methodology process in the previous chapter, this chapter presents data analysis and a discussion of the results. As indicated earlier, the study adopted a mixed methods approach because both quantitative and qualitative data were collected. This chapter is mainly divided into two, namely quantitative analysis and qualitative analysis.

4.2   Quantitative Data Presentation: ARC Questions

As stated in Chapter Three, quantitative data presentation was done using descriptive frequency tables. Due to the nature of the data that was collected, data presentation was only restricted to frequency distribution tables, other descriptive statistical tools like central tendency measures and variability of data sets were not considered. The ARC questionnaire contained the questions that collected quantitative data. All the 23 ARC employees answered the questionnaire making it a 100% response rate. The descriptive frequency tables were presented per each question as depicted in the following:

Question 1:

Please indicate the month that applications open

Table 5: Month that applications open

Month	Frequency	Percent	Valid Percent	Cumulative Percent
March	2	8.7	8.7	8.7

Month		Frequency	Percent	Valid Percent	Cumulative Percent
	May	17	73.9	73.9	82.6
	June	3	13.0	13.0	95.7
	July	1	4.3	4.3	100.0
	Total	23	100.0	100.0	

The responses of the employees in ARC show that applications open at different times in different years. This question did not specify the number of years covered by the question, but the fact that respondents indicated different months shows that opening times vary each year. However, 17 out of 23 respondents indicated consistency in opening applications in May. However, other employees have experienced opening of applications in other months, so the university does not have a definite fixed month in which applications open.

Question 2: *Please indicate the month that applications close*

Table 6: Month applications close

Month		Frequency	Percent	Valid Percent	Cumulative Percent
	July	2	8.7	8.7	8.7
	August	1	4.3	4.3	13.0

	September	20	87.0	87.0	100.0
	Total	23	100.0	100.0	

Table 5 shows that most employees understand that the applications close in September every year. 2 respondents have experienced applications closing in July and 1 in August. Therefore, the university closes applications in September except for a few occasions when they close in other months.

Question 3: *Before the season starts, do you get a brief of what to expect during the applications period?*

Table 7: Applications information

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	15	65.2	65.2	65.2
No	8	34.8	34.8	100.0
Total	23	100.0	100.0	

From Table 6, the majority (15) indicated that they receive information about processing applications before opening the application period. However, there is a surprising phenomenon that a significant number (8) indicated that no information was provided to

prepare employees to handle applications. While it is not known what led to the difference in answering this question, what is clear from the answers is that not all employees are satisfied with how preparations for application handling are done.

Question 4: *How many years of experience do you have with applications?*

Table 8: Employees' years of experience

	Frequency	Percent	Valid Percent	Cumulative Percent
1 <= year < 2	1	4.3	4.3	4.3
2 <= Year < 3	1	4.3	4.3	8.7
4 <= Year < 5	3	13.0	13.0	21.7
Greater than 5	18	78.3	78.3	100.0
Total	23	100.0	100.0	

Table 7 shows that 18 of 23 had been employed at the university for at least 5 years. This shows that 18 employees had vast experience in the operations of the ARC office.

Question 5: *Does the applications period get extended?*

Table 9: Extention of applications

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	23	100.0	100.0	100.0

All the respondents agreed that the application period gets extended. Therefore, the closing month of applications gets extended every year. This indicates that planning for applications is not always done properly because other factors always interfere with the university calendar.

Question 6: *If application period gets extended, what is normally the reason?*

Table 10: Reason for Applications Extention

	Frequency	Percent	Valid Percent	Cumulative Percent
Few Applications	20	87.0	90.9	90.9
DHET Directive	2	8.7	9.1	100.0

	Total	22	95.7	100.0	
Missing	System	1	4.3		
Total		23	100.0		

Table 9 shows that 90.9% of the time, the application period is extended because the university has received fewer applications than anticipated. On a few occasions, the application period gets extended because of a directive from the Department of Higher Education and Technology (DHET).

Question 7:

If your indicated Other in question 6, please explain the reason briefly

Four (4) respondents decided to also answer this question even though it was meant for respondents that had said the reason was neither few applications nor DHET directives. There was an emphasis that few applications are the main reason. One (1) responded said they were not clear as to why applications get extended.

Applications can be extended because of the target for the institution, or Systems error
Quota not filled.
Student had problems with uploading.or could not submit.

Question 8: *After applications season, do you compile a report on lessons learnt and what to improve for the next applications season?*

Table 11: Post Application Report

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	15	65.2	65.2	65.2
No	8	34.8	34.8	100.0
Total	23	100.0	100.0	

Table 10 shows that 15 respondents indicated that they compile reports on lessons learnt and what to do to improve on the next applications cycle. Eight respondents indicated that they do not compile any reports on lessons learnt. No other information was provided. Most likely, the respondents who do not write reports are at junior level. However, the processes should be improved because every employee should be aware that reflections should be done after every activity.

Question 9: *Are you involved in the selection process?*

Table 12: Applications Selectors

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	5	21.7	21.7	21.7
No	18	78.3	78.3	100.0
Total	23	100.0	100.0	

Only 5 people in the ARC unit are involved in applications evaluations and the selection process. The majority (18) are not involved in the selection process.

Question 10:

If answer in 9 above is yes, to what extent?

The following are the responses of the 5 ARC employees involved in the selection process. The question required them to indicate their involvement in the process.

Accepting or Rejection
Not currently, used to be.
to the extent that i agree the above statement is true

Up to an extent that we need to answer to the auditors if there is anything wrong with an application form.			
Upfront rejection process			

The responses above show that their involvement is more of a quality control exercise rather than doing the actual selection.

Question 11: *Applicants who do not meet the minimum requirements, are they referred to faculties?*

Table 13: Unqualifying Applicants

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	8	34.8	34.8	34.8
No	15	65.2	65.2	100.0
Total	23	100.0	100.0	

The majority (15) indicated that applications which do not meet minimum requirements are not referred to faculties. The remainder (8) indicated that these applications are referred to faculties. There is no general understanding of this matter as far as ARC employees are concerned. Information, therefore, is not enough as far as handling such applications is concerned.

Question 12: *How long is the selection process from the time applications are referred to Faculties to the time these are returned for status change?*

Table 14: Turnaround time between ARC and Faculties

		Frequency	Percent	Valid Percent	Cumulative Percent
	1 Week	1	4.3	6.3	6.3
	2 Weeks	6	26.1	37.5	43.8
	3 Weeks	9	39.1	56.3	100.0
	Total	16	69.6	100.0	
	Unknown	7	30.4		
Total		23	100.0		

Standard operating processes are not followed or not emphasised. When ARC receives applications, they send them to faculties for evaluation. Faculties do an evaluation and return application forms to ARC for capturing into the system, so applicants receive feedback. This turnaround time is not standard or completely misunderstood. 7 respondents indicated that they do not know the turnaround time between ARC and faculties. 6 respondents said the turnaround time is 2 weeks, 9 said it is 3 weeks, and 1 said it is 1 week. This lack of standards can result in delays in turnaround time with applicants.

Question 13: *How long (in weeks) does it take to process applications with portfolio requirements?*

Table 15: Turnaround time for portfolio applications

Weeks	Frequency	Percent	Valid Percent	Cumulative Percent
2	2	8.7	15.4	15.4
4	5	21.7	38.5	53.8
6	1	4.3	7.7	61.5
7	5	21.7	38.5	100.0
Total	13	56.5	100.0	
Unkown	10	43.5		
Total	23	100.0		

Table 14 shows that ARC officers do not understand how to process different types of applications. This question requires operating procedures that deal with applications with portfolio requirements. These are applications in practical departments such as Applied Design, Architecture and Interior Design. In addition to normal online applications, applicants submit a portfolio of evidence as part of the application package. Experts in respective departments evaluate these portfolios. 10 out of 23 ARC unit employees are unaware of the turnaround time of portfolio applications. Responses indicate that the understanding of turnaround around the time of portfolio applications is not the same. Five said the turnaround time is 7 weeks, 1 responded said the turnaround time is 6 weeks, 5 indicated 4 weeks, and

2 said the time is 2 weeks. This haphazard understanding leads to dispatching information that is not the same to inquirers of the processes.

Question 14: *How long (in weeks) does it take to process applications without portfolio requirements?*

Table 16: Turn-around time for non-portfolio applications

	Frequency	Percent	Valid Percent	Cumulative Percent
2	5	21.7	27.8	27.8
4	8	34.8	44.4	72.2
6	4	17.4	22.2	94.4
7	1	4.3	5.6	100.0
Total	18	78.3	100.0	
Unkown	5	21.7		
Total	23	100.0		

Similar to Table 14, Table 15 show the same misunderstanding by ARC employees about application turnaround times. Five respondents indicated that they do not know the turnaround times for non-portfolio applications. One said the turnaround time is 7 weeks, 4 respondents indicated 6 weeks, 8 said the turnaround time is 4 weeks, and 5 respondents

said 2 weeks. There is complete inconsistency in terms of the understanding of the application processes by ARC employees.

Question 15: *Is registration online or manual*

Table 17: Type of registration

	Frequency	Percent	Valid Percent	Cumulative Percent
Online	12	52.2	52.2	52.2
Manual	1	4.3	4.3	56.5
Both online and manual	10	43.5	43.5	100.0
Total	23	100.0	100.0	

It was also surprising from the data on the question of whether registration is manual or electronic or both that there is no shared understanding of the processes. Twelve said that registration is online, 1 said registration is manual, and 10 indicated that registration is both manual and online. Therefore, employees are not appraised as to which category of applicants do register online and which do register manual. As a result, the misunderstanding leads to misinformation.

Question 16:

If your answer above if both online and manual, please explain

Respondents provided the following reasons why some applicants register manually, and others register online.

All applications are online except for special cases such as 4th choice in January, when an applicant struggling with the online.
At our (international office) we first check documents and student can register online
Back office reg for returning students with extra subjects
Manual applies only when the system does not allow the student to register online
Manual if for old qualifications that is finishing off.
NON- Degree are done on Manual
Non-Degree/diploma student register manually
online for academic year. Manual for graduation purpose
Qualifications that are not able to register online.
RETURNING STUDENTS AND THOSE EXPERIENCING TECHNICAL ISSUES.
Some students are returning to register for old qualifications and need to do manual registration
The student is given 3 choices to choose the qualification he or she want to apply for, if then the student is rejected in all three, if the student want to try again the system will block the student that is when the student can use manual application, and also when the application cycle is extended student apply manually.

Question 17: *In which month does registration period start?*

Table 18: Start of Registration

	Frequency	Percent	Valid Percent	Cumulative Percent
January	18	78.3	78.3	78.3
February	4	17.4	17.4	95.7
March	1	4.3	4.3	100.0
Total	23	100.0	100.0	

Table 17 indicates that 4 ARC employees said registration opens in Feb, and 1 believed that registration starts in March. The rest showed that registration starts in January. It is not known why some employees understand that registration starts in February and 1 starts in March. However, it all boils down to the fact that information dissemination is not adequate.

Question 18: *In which month does registration end?*

Table 19: End of Registration

	Frequency	Percent	Valid Percent	Cumulative Percent

February	4	17.4	17.4	17.4
March	10	43.5	43.5	60.9
April	2	8.7	8.7	69.6
May	5	21.7	21.7	91.3
July	1	4.3	4.3	95.7
December	1	4.3	4.3	100.0
Total	23	100.0	100.0	

Differences in times indicated by respondents on the end times of registration indicate that registration could be extended in some years or in all the years. Employees, therefore, do not have a fixed month when registrations end. While many indicated March as the month when registrations are concluded, 1 indicated that registration ends in December and 1 said in July. Five said registration ends in May, and 2 indicated April as the month when registration ends. These variances in understanding lead to misinforming students about the registration calendar, and the misinformation can potentially have unintended consequences where some students miss registration deadlines.

Question 19:

Do you assist students with manual and online registrations?

Table 20: Assistance with registrations

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	20	87.0	87.0	87.0
2	3	13.0	13.0	100.0
Total	23	100.0	100.0	

20 out of 23 respondents indicated that they assist students with both online and manual registrations. It is not known why the other 3 staff members do not assist students. It may be assumed that their portfolio may not interface directly with students.

Question 20: *Do you receive training to assist students who encounter registration problems?*

Table 21: Training on registration

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	13	56.5	56.5	56.5
No	10	43.5	43.5	100.0
Total	23	100.0	100.0	

As much as 10 out of 23 employees indicated that they do not receive training to assist students with registration. 13 respondents agreed that they receive training. Those that go to assist students without the necessary training may take a long time to assist them, or some may not be able to assist because they also do trial and error.

4.3   Qualitative Data Presentation: AGC Questions

This section presents the data analysis of qualitative data using the thematic analysis method as well as narrative analysis. These interview questions were emailed to 15 employees in the Assessment and Graduation unit of the registry department.

Question 1:

What role does AGC play in preparation for assessments?

Respondents made 4 clear role clusters as follows:

1. Sorting question papers and answer books. This involves receiving question papers and making appropriate copies as indicated on exam cover sheets
2. Liaising with moderators of exams. Making sure that exam papers are moderated. The papers are sent via courier
3. Scheduling venues for assessments
4. Arranging invigilators and giving them instructions

The above roles we clearly indicated by the employees of AGC.

Question 2:

What role does AGC play during assessments?

All respondents were clear on the role of AGC during the assessment that AGC is the first point of contact. Some extracts from responses were:

AGC is the go-to office for any incidents during assessments. Whatever goes wrong, AGC is the first point of contact.

Recording of question papers that was actually written according to timetables.

Recording of question papers that was written.

Checking out question papers to examiners for marking, preparing for reassessments.

Making sure all assessments go according to plan. Making extra copies if/when needed.

Monitor and address all queries and incidents. Ensure compliance with policy and rules.

To monitor the question during exam time. Count the stripts and make sure that they match student to the sign.

Monitor and address all queries and incidents. Ensure compliance with policy and rules.

Question 3:

What role does AGC play after assessments?

Respondents showed that they know the roles they play after the exams. Some of the responses are as follows:

Scripts and attendance slips are reconciled after assessments and academics sign out at AGC to take scripts for marking. AGC is also responsible for moderation of scripts after assessments.

Take receipt and record total number of scripts received from invigilators/examiners. Issue scripts to examiners for marking. On receipt of marked exit level subjects, send to external moderators and inform examiners when the moderators return scripts.

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After each exams the invigilators will bring all tests to us with all the necessary control forms. We count the scripts and attendance form in front of the invigilator as extra control.

We are tasked with sending the scripts to external moderators as well as getting a report about the whole examinations that took place.

Question 4:

Is there good and satisfactory communication between AGC and academic departments before, during and after examinations?

Table 22: Communication between AGC and departments

Response	No. of respondents
Yes	12
No	3

Table 21 shows that 12 out of 15 respondents are satisfied with the communication between AGC staff and academic departments. 3 AGC employees indicated that the communication between the two entities is not satisfactory. The concerns of the 3 unsatisfied employees cannot be ignored, so processes should be put in order to address their needs.

Question 5:

If your answer on 4 above is "No", please explain

Of the 3 respondents that indicated a "No" in Question 4, they provided the following reasons.

1. *Lack of communication and arrogance is my major concern.*
2. *Communication is not effective, e.g. if time table changes, they won't update you. Student writing online. You have to ask several times to get answer. Sick test they will communicate or send note to tell you that certain number of student are writing without time table. Or on the day of sick test*
3. *N/A*

Question 6:

What challenges do you as AGC normally face before, during and after examinations?

Responses to the question varied, leading to the development of themes. From the responses, the changes highlighted were grouped into the following themes:

- Incorrect information on the question paper
- Late submission exam time-table
- Incorrect student numbers
- Late submission of question papers

Table 23: Thematic Analysis of Challenges faced by AGC staff

Theme	Text Extract	No. of Responses
Communication	*Sending question papers to moderators and lack of communication from examiners.*	7
Use of Technology		2
Timely Submission of Documents	*No time-table available for preparations* *Missed due dates* *Timetables not being on time.*	5

Incorrect information	*Incorrect contact details of external moderation, changed timetables during examination, Incorrect subject codes on question papers, incorrect cover pages for question papers.*	1
	Incomplete information received from stakeholders and poor planning from departments.	
	The numbers of students on Timetables are not correct.	

It can be noted from Table 22 that the theme of Communication is the most popular. Respondents indicated that there is no proper communication between the AGC and the academic departments.

Question 7:

Do you have any suggestions on how the challenges identified in 6 above can be resolved?

Table 24: Thematic Analysis of suggested solutions to challenges

Theme	Text Extract	No. of Responses
Communication	*Yes. Firstly we are the 1st line of communication with external moderators. If AGC could take over the role of external moderators to save us the embarrassment of approaching unpaid external examiners could be ideal.* *Cooperation, information sharing, effective communication, and change management.*	7

	Improvement of communication barriers.	
Use of Technology	*To revolutionalise technology, for example, immediately after student registers, must be able to print his / her timetable as they do to proof of registration.* *If we can use technology for an efficient way forward by doing this process online*	2
Timely Submission of Documents	*Timetables must be drafted ahead of time, so when question papers are submitted, the timetables must be finalised* *Adhere to due dates, HODs take responsibility*	5
Incorrect student numbers		1

Question 8:

Which office identifies graduands?

All respondents indicated that the Faculty Offices do identify graduates. It shows that the respondents are satisfied with the status quo because none indicated any other comment.

Question 9:

Which office does the verification of identified graduands?

Respondents from AGC have a different understanding of who is responsible for verifying identified graduands. Table 24 shows the diverse responses.

Table 25: Office Responsible for verification of graduands

Faculty Offices	Central Registry	Both Faculty Offices and Central Registry
6	2	7

The responses indicate that AGC employees have no understanding of the ownership of the graduand verification process, which is prone to result in graduand identification errors.

Question 10:

Do you sometimes find out there are errors on the graduation list after graduation booklets have been printed and invitation letters sent out?

14 out of 15 respondents indicated that graduand identification errors normally go undetected and find their way into graduation booklets. Incorrectly identified graduands even receive invitation letters for graduation. This is a huge problem for the university. Graduating students that should not have graduated is not tolerated in the university sector or the entire scholarly community.

Question 11:

If your answer for 10. above is "Yes" how often do such errors occur?

Table 26: Frequency of occurrence of graduate identification errors

Very Often (At every graduation)	Not very often	At least once a year
10	3	2

The responses to Question 11 show that the problem of wrongly identifying graduands to the extent of issuing certificates, diplomas and degrees to undeserving students is very prevalent.

Question 12:

In the case that an ineligible graduand is identified in error and is awarded a certificate, what measures are in place to recover the wrongfully issued certificate?

The AGC employees who often experience this phenomenon indicated that the students that would have received the certificate in error are contacted and advised to return the certificate. They also indicated that the student's record is deleted from the graduates database. The following are some of the responses to this question:

If a certificate was awarded to someone in error the certificate is recalled and the student is informed to return said certificate

The graduates are requested to return the qualification and qualification awarded details are deleted from the student system.

Graduate will be contacted and explained that a human error had occurred and request to send back his certificate to AGC.

Question 13:

Do you think there is a better way to identify graduands in order to make the process more efficient?

Table 27: Better ways for graduand identification

There is a better way to identify graduands	Current process of good
12	3

Question 14:

If your answer to 6 above is "Yes", please explain

Responses were categorised into the following themes:

- Automate the process
- Track students from the registration stage
- Train faculty assistants

The number of respondents per each theme is shown in Table 27

Table 28: Solutions to graduate identification errors

Automate the process	Track students from early stages	Train faculty assistants
7	3	1

Under the *Automate the process* theme, some of the responses are as follows:

An automated system will assist with this

Should be an electronic identification process

There should be a program on ITS that identify the student when he has passed all the required subjects

An automated system should be developed, I mean a system that will have access to the students life cycle including academic record, and that system should be able to self rectify or inform the user about an error by highlighting the student information in red, making that red a code of not being a possible graduate.

For the *Track students from early stages* theme, one respondent alluded to identifying and tracking students when they register for the final subjects. The response is:

Graduates should be identified when they register for their final subjects on our ITS. The Faculty Office should work with the Departments in identifying graduates.

The other respondent suggested tracking students for graduation purposes upon initial registration. The response is:

Identification should start immediately after registration. We also need to look at making this process system generated to eliminate human error

Under the Train faculty assistants, the following response was submitted:

Faculties not always trained efficiently to do identification and they are not taking it seriously

Question 14:

After graduation period, do you compile a report on lessons learnt and what to improve in the next graduation period?

Twelve respondents indicated that a debriefing session takes place in the department after every graduation. Respondents did not specify what resolutions were made in the debrief sessions concerning the errors which would have been encountered in the various stages.

Three respondents indicated that there is no feedback. Hence there are no lessons that are learned and discussed. 1 of the 3 respondents elaborated their response as follows:

No report, you learn the lessons your own way. For example I didn't know that immediately when you capture or qualify a student on the system, the system automatically generates an invitation letter until I made an error. That was my lesson I learnt.

4.4   Chapter Summary

This chapter presented the data which was collected from participants. All 23 employees who formed the entire ARC department participated in the study. Data was presented quantitatively via frequency tables. Various diverse responses to any given question have shown that there is no shared understanding of the processes within ARC. It was also shown in this chapter that 15 employees from the AGC participated in the study. Qualitative data was collected from AGC and analysed through thematic and narrative analysis techniques.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study explores the benefits of projectised university processes in the registrar's department. Two main divisions have been explored: the Assessment and Graduation Centre (AGC) and the Applications and Registration Centre (ARC). It is critical to comprehend this study in two ways. Firstly, it identifies a gap in literature where no studies primarily address the need for projectising activities of the university administration processes. Addressing this gap is critical for research since literature reports that universities increasingly employ more administrators at many levels.

Secondly, this study is critical for its practical relevance. The university under study faces administration challenges, as revealed during data gathering. This study's recommendations will be directed towards improving and streamlining both ARC and AGC processes to minimise errors and improve efficiency.

During the literature review, the researcher analysed the student life cycle, which is almost generic within South African universities. The need for institutional adaption to evolving environments was identified as university administrative processes remain rigid. Alongside analysis of the student life cycle, the researcher reviewed the phases of the project cycle as presented by PMBOK. The aim was to identify project management activities which could be implemented in the ARC and AGC processes in order to improve the performance of the university administration units. From the review of the literature, a conceptual framework was formulated. The conceptual framework guided the design of the data collection instruments. According to the conceptual framework, data was collected under the following stages: student selection, applications, admission, student registration and graduation. The data collection instruments were designed following these phases and were administered to both AGC and ARC, following their distinctive roles and functions.

5.2 Discussion of findings

The following subsections discuss findings for each stage as defined by the conceptual framework.

5.2.1 Findings in Application Phase

Applications is a function that is handled by ARC. All members of staff that handle applications were subjects of the study. Findings were that some employees are not sure about the exact month the applications open and the month that applications close. It means that walk-in inquirers can be given conflicting information on when to submit applications. Also, many employees in ARC pointed out that they enter the application processing phase without any briefing in terms of what to expect in the process. This affects possible errors in the process. Some applications, especially those that are still manually based, could be lost while others are captured into the system late. In most cases, the applications window gets extended, but many employees in ARC remain uninformed about why the applications window will have been extended. It means employees get to convey inaccurate information to various constituencies, as shown in the diverse responses. After the applications phase, a report or reports are produced, but the reports are not shared with employees in the department. That means there is no feedback regarding the execution of the applications phase.

5.2.2 Findings of the selection phase

This is a function that also lies within ARC. The selection process is a tightly controlled process in which few employees in ARC are involved as they work with respective faculties and departments. Many employees do not know the activities in this function. There is no position which is communicated to all employees about what they should do to applicants that do not meet the minimum requirements of the programmes they would have applied for. There is also no shared understanding of how long the selection process takes. Lack of knowledge on turnaround time affects the quality of information the ARC employees communicates to applicants. It is quite common that after applicants would have sent applications, they continuously follow up with numerous phone calls. They want to understand when they will receive the outcome of their applications. Therefore, staff members in ARC communicate conflicting information to different applicants. Some departments in certain faculties require applications to be in a portfolio format. These applications are delivered in manual files. There is complete confusion in ARC about the turnaround times of these applications. Not all ARC employees are even trained to handle portfolio applications.

5.2.3 Findings in the Registration phase

Many ARC employees are unaware of which types of applicants should apply online and which ones should be registered manually. They are also not aware of the programmes which require manual registration and which ones require online registration. Therefore, inquirers who call and walk into campus are provided with different information depending on the employee who would have attended to them. There is also no shared understanding of when the registration period starts and when it ends. While this information is usually published in the university student booklet, dates are normally changed, and some ARC employees remain uninformed about the exact dates. Not all employees get training to assist students with registration. So they struggle to assist students that would like to register online and those that do walk-in registration.

5.2.4 Findings on AGC qualitative inquiry

AGC staff did not share the same understanding of the assessments and graduations. The main challenge was the lack of structured, coordinated communication channels between the AGC staff and departments during the assessment. Common errors like incorrect information on question papers and answer sheets and late submissions take time to correct, and in most cases, students write examinations with errors. Improved communication was, therefore, a recommendation that most respondents made.

Most staff members in AGC are not aware of whose responsibility it is to verify and consolidate identified graduands. Therefore, graduation-related errors are not normally detected in the time leading to erroneously awarding certificates to students.

Overall, findings from this study form part of the factors contributing to efficiency improvement as a benefit from project-based management by Martinsuo et al. (2006) as indicated in the litrerature review section. Failure to implement project-based activities in registry department in universities contribute to the challenges mentioned in lioterature. These challenges have a negative effect on the progress of students' academic activities as well as post-university endeavours.

5.3 Recommendations: Registry Projectisation Model (RPM)

The Registry Projectisation Model/Matrix (RPM) is the recommendation of this study. The RPM is shown in Figure 4. The RPM model posits that university registry processes be

handled as individual projects. These traditional processes are applications and selection, registration, assessments and graduation. Each follows the entire project management cycle. Each project, therefore, goes through the conception and initiation stage, definition and planning phase, execution, monitoring and control and finally, project closure. The RPM approach ensures that work tasks which are then managed and distributed into teams are handled comprehensively. Most importantly is the proper management and adherence to the scope and time of each project.

Table 29: Registry Projectisation Model (RPM)

Project	Conception & Initiation	Definition & Planning	Execution	Monitoring & Control	Project Close
Applications (Selection & Admission)	• Develop a Project charter called "Applications 2023 Project Charter". • Overview of applications, selection and admissions process • Set terms of reference on how the Applications project will run. • List of stakeholders for the application project	• Kick-off meeting with ARC staff and stakeholders to the Applications project • Define type of applications (manual, online, ECP undergraduate, postgraduate, exchange students, international applications, etc.) • Workshopping selectors to understand international qualifications • Plan for applications that require portfolios • Outline deliverables expected • List Applications project requirements • Define Work breakdown structure • Role Assignment • Define resource requirements	• Receiving and batching applications • Maintaining constant contact with faculties and institutes • Verify results • Timeous dispatch of batches for selection • Selection decisions properly reflected on every application form • Check if applicants have been admitted to other programmes • Check with accepted applicants if they accept offer • Handle 4th choices according to policy • Keeping log records of progress • Make follow-up with selectors • Prompt feedback to applicants • Compile progress reports	• Oversee all the applications project steps to keep the process in check • Compare application project expectations with prevailing data (expected applications per programme, speed of execution, etc.) • Identify problems and risks (delays, etc.) • Take corrective measures	• Compile Applications Project comprehensive report. • Highlight challenges encountered and successes • Compile a list of lessons learnt • Indicate recommendations for the next Applications Project
Registration	• Develop "Registration Project Charter"	• Define a step by step guide on how students will embark on their registration	• Ensure that all provisionally accepted student statuses are changed to	• Project team leader to ensure that the project steps are followed to	• Compile Registration Project comprehensive report.

	• Understand exact dates when registration will start and end. • Agree on contact details (number, email), informing student whom to contact in case they need registration assistance. • Once registered who to consult for their class timetable	• Business Application Testing of the system in preparation for the Registration Project should be done by all stakeholders involved in the project. These are ARC staff, HEMIS staff and ARC software technicians. • Understand handling of blocks (financial block, academic block, international block) • Software technicians specialise in ensuring that batches are despatched	Accepted before registration cycle opens. • Ensure that all returning students are bulk admitted for the next level, e.g. all 1st years are admitted to the 2nd year level. • Attend to any phone calls or emails pertaining to registration in case students struggle to do their registration online. • Software technicians to ensure that the system is up and running without glitches and be available at all times to attend to queries.	ensure the process runs smoothly during registration period. • Identify challenges experienced and identify risks. • Document any registration glitches • Record any reasons for extension of registration • Inform software technicians of any concerns experienced during registration.	• Highlight challenges encountered and experienced. • Compile a list of lessons learnt • Indicate recommendations from the project team
Graduation	• The Graduation Project Charter will contain information team members responsible for identifying graduands • A step by step guide on how to identify graduands • The exact timelines (start date and the exact date when graduation ends). The exact date and time when graduation invitations will be sent out to graduands.	• Kick off meeting with AGC staff and Faculty staff responsible for identifying graduands. • Outline the deliverables expected after receipt of graduation lists from Faculty staff. • Define Work Breakdown structure • Assign roles for each team member. • Define what resources are needed to complete the Graduation project	• Faculty staff to ensure that AGC staff receives the graduation lists timeously. • Ensure that graduating students are informed timeously. • AGC staff to ensure that students are issued their graduation letters as stated in the Project charter. • Issue letter of completing • Generate graduate employability statistics	• Project team leader to ensure that the project steps are followed to ensure progress with identified graduands. • Verification and quality checking team needs to alert the change management committee team in case there are students to be struck off the roll or added on.	• Compile Graduation Project comprehensive report. • Highlight challenges encountered and experienced. • Compile a list of lessons learnt • Indicate recommendations from the project team

5.4 Conclusion

This research explored the possibility of introducing the projectisation model approach to university processes which are located within the registry department of a university of technology. Empirical data were collected from staff members managing the student life cycle activities in the registry unit. All staff members in the unit were data collection subjects. Both quantitative and qualitative data were collected and analysed using descriptive tables and thematic analysis, respectively.

Findings have revealed several challenges which cause errors in the processing activities. From the analysis of data, this research has developed a model, the RPM, which reinforces the importance of the project management approach to the registry activities.

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APPENDICES

Appendix A: Request to collect data

May 1, 2021

Dear Colleague,

RE: Request to complete a questionnaire

I am a student in MTech in Business Administration at the Cape Peninsula University of Technology and also a member of staff in the Faculty of Informatics and Design's Faculty Office. I am carrying out a research whose title is "**Developing a project management model for a university of technology in South Africa**".

This questionnaire is part of an investigation into the use and the adoption of project management as a strategy in handling student life cycle activities within both the ARC and AGC units of registry office. I hope my project will also have a practical contribution in the CPUT community once the results have been evaluated. I understand it will consume a lot of your valuable time of your already busy day, but in the long term I think it will assist in realising the full benefits of the concept of projectisation as related to higher learning institutions in South Africa and CPUT in particular.

Permission to collect data has been granted and the ethics clearance certificate has been issued.

Thanks to managers of AGC and ARC for authorising me to conduct research in the two units.

I am hereby requesting your participation to complete the 6-15 minute online survey whose link is given below. At your convenience, may I request that you complete the questionnaire by 10 June 2021.

Please select the appropriate link below (depending on your section ARC or AGC). The following are the two links from which you select yours:

ARC

https://forms.gle/DrAEa44hBzD75jWE6

AGC

https://forms.gle/VrX91RXVXTPY6Mhi7

Thanking you in advance

Regards,

Ms Thandiswa Madadasana

Candidate: MTech in Business Administration

Assistant Faculty Officer

Faculty of Informatics and Design

Appendix B: ARC Questionnaire

This questionnaire is for Ms Thandiswa Madadasana's studies. You are requested tocomplete the questionnaire which will take you between 5-10 mins.

Section 1: Applications

1.   Please indicate the month that applications open *

Check all that apply.

☐ January
☐ February
☐ March
☐ April
☐ May
☐ June
☐ July
☐ August
☐ September
☐ October
☐ November
☐ December

2.   Please indicate the month that applications close *

- [ ] January
- [ ] February
- [ ] March
- [ ] April
- [ ] May
- [ ] June
- [ ] July
- [ ] August
- [ ] September
- [ ] October
- [ ] November
- [ ] December

3.   Before the season starts, do you get a brief of what to expect during the *applications period?

Mark only one oval.

- [ ] Yes
- [ ] No

4.   How many years of experience do you have with applications? *

Mark only one oval.

- [ ] Less than 1
- [ ] Greater than 1 but less than 2
- [ ] Greater than 2 but less than 3
- [ ] Greater than 3 but less than 4
- [ ] Greater than 4 but less than 5
- [ ] Greater than 5

5. Does the applications period get extended? *

   Mark only one oval.

   ( ) Yes

   ( ) No

6. If application period gets extended, what is normally the reason? *

   Check all that apply.

   [ ] Few applications
   [ ] DHET Directive
   [ ] Other: _____

7. If your indicated "Other" in question 6, please explain the reason briefly

   _____

8. After applications season, do you compile a report on lessons learnt and *what to improve for the next applications season?

   Mark only one oval.

   ( ) Yes

   ( ) No

   Skip to question 10

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Section 2: Selection Process

1.   Are you involved in the selection process? *

     Mark only one oval.

     ◯ Yes

     ◯ No

2.   If answer in 1 above is yes, to what extent?

_____

3.   Applicants who do not meet the minimum requirements, are they referred *to faculties?

Mark only one oval.

◯ Yes

◯ No

◯ Other:___

4.   How long is the selection process from the time applications are referred *to Faculties to the time these are returned for status change?

Check all that apply.

☐ 1 Week

☐ 2 Weeks

☐ 3 Weeks

☐ Not Specified

5.   How long (in weeks) does it take to process applications with portfolio *requirements?

Check all that apply.

☐ Within 2 weeks

☐ Within 4 weeks

☐ Within 6 weeks

☐ More than 6 weeks

☐ Not Specified

6. How long (in weeks) does it take to process applications without portfolio *requirements?

Check all that apply.

☐ Within 2 weeks

☐ Within 4 weeks

☐ Within 6 weeks

☐ More than 6 weeks

☐ Not Specified

Skip to question 16

Section 3: Registration Process

1. Is registration online or manual *

Mark only one oval.

◯ Manual

◯ Online

◯ Both Manual and Online

2. If your answer above if both online and manual, please explain

_____

3.   In which month does registration period start? *

- [ ] January
- [ ] February
- [ ] March
- [ ] April
- [ ] May
- [ ] June
- [ ] July
- [ ] August
- [ ] September
- [ ] October
- [ ] November
- [ ] December

4.   In which month does registration end? *

- [ ] January
- [ ] February
- [ ] March
- [ ] April
- [ ] May
- [ ] June
- [ ] July
- [ ] August
- [ ] September
- [ ] October
- [ ] November
- [ ] December

5.   Do you assist students with manual and online registrations? *

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Other:___

6. Do you receive training to assist students who encounter registration *problems?

Mark only one oval.

( ) Yes

( ) No

3. Please enter your CPUT Email *

_____

This questionnaire is for Ms Thandiswa Madadasana's studies. You are requested to complete the questionnaire which will take you between 5-10 mins.

* Required

1. What role does AGC play in preparation for assessments? *

   _____

2. What role does AGC play in during assessments? *

   _____

3. What role does AGC play after assessments? *

   _____

4. Is there good and satisfactory communication between AGC and academic *departments before, during and after examinations?

Mark only one oval.

( ) Yes

( ) No

5. If your answer on 4 above is "No", please explain

   _____

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_____

_____

_____

6. What challenges do you as AGC normally face before, during and after
   *examinations?

_____

_____

_____

_____

7. Do you have any suggestions on how the challenges identified in 6 above canbe
   resolved?

_____

_____

_____

Graduation

1. Which office identifies graduands? *

Mark only one oval

○ Faculty Offices

○ Central Registry

○ Both Faculty Offices and Central Registry

2. Which office does the verification of identified graduands? *

Check all that apply.

○ Faculty Offices

○ Central Registry

○ Both Faculty Offices and Central Registry

3. Do you sometimes find out there are errors on the graduation list after *graduation booklets have been printed and invitation letters sent out?

Check all that apply.

☐ Yes

☐ No

4.   If your answer on 3. above is "Yes", how often do such errors occur? *

Mark only one oval

○ Very Often (at every graduation ceremony)

○ At least once a year

○ Not very often

5.   In the case that an ineligible graduand is identified in error and is awarded acertificate, what measures are in place to recover the wrongfully issued certificate?

_____

6.   Do you think there is a better way to identify graduands in order to make the *process more efficient?

Mark only one oval

○ Yes [there should be a better way]

○ No [the current process is good]

7.   If your answer to 6 above is "Yes", please explain

_____

_____

_____

_____

8.   After graduation period, do you compile a report on lessons learnt and
*what to improve in the next graduation period?

_____

9.   Please enter your CPUT Email *

_____