

UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

A PROJECT MANAGEMENT METHODOLOGY FOR CONSTRUCTION
PROJECTS WITHIN THE ACADEMIC HOSPITAL PARAMARIBO

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DEDICATION

*I dedicate this project to my amazing husband, Clarence Dundas,
and my two wonderful kids Jayden and Kayleigh-Ann.*

They are my inspiration and my strength.

*Their love, dedication, and understanding
ensure that I gave it all until the end.*

*Thank you for the love, patience, and encouragement
throughout this program.*

Love you my Jewels.

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ABBREVIATIONS AND ACRONYMS

AZP	Academisch Ziekenhuis Paramaribo
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CNO	Chief Nursing Officer
FGP	Final Graduation Project
MetAZ	Methodology AZP
OPM3	Organizational Project Management Maturity Model
PERT	Project Evaluation and Review Techniques
PM	Project Manager
PM2	Project Management Maturity
PMBok	Project management Body of Knowledge
PMI	Project Management Institute
PMM	Project Management Methodology
PMMM	Project Management Maturity Model
PMO	Project Management Office
PRINCE2	Projects IN Controlled Environments 2
SOW	Statement Of Work
WBS	Work Breakdown Structure

EXECUTIVE SUMMARY (ABSTRACT)

A formal approach with procedures, processes, and techniques is a common aspect most project management processes lack in Suriname. This is also an issue in the Academic Hospital Paramaribo (in dutch: Academisch Ziekenhuis Paramaribo -AZP). A project methodology guides the project manager to manage the project better to achieve good project results. This document describes the development of a Project Management Methodology for the Academic Hospital Paramaribo.

AZP is the largest hospital in Suriname, operating in six different locations in Paramaribo and owning more than 70 buildings. The hospital has 2,300 employees, including medical experts, physicians, nurses, nursing staff, and management staff. It has a bed capacity of 510 beds and accommodates 2 laboratories, 23 medical specialties, the biggest Emergency center, and only fully equipped Intensive Care Unit (ICU). AZP is the only hospital center that provides top specialized treatments (such as Cardiac disorders, ER traumas, Eye care services, and Radiotherapy).

Within the Academic Hospital projects are overseen by several project managers and project leaders each with their way of managing the project. This is the main reason why the AZP has faced many problems in its project management approach in the past few years. The lack of structure and procedures are the main issue in the project management process which cause unnecessary delays in projects.

The purpose of this research is to develop a suitable Project Management Methodology (PMM) for the Academic Hospital, to be able to standardize, structure, and organize the work in the project management process to successfully execute its construction projects.

To further utilize the project management method, there are specific objectives that describe the different tools and techniques used in this research. To define the best-practice methods for the Academic Hospital a maturity analysis will be conducted to determine the organizational needs of AZP, and different project methodology will be analyzed to establish a suitable project management methodology.

The method used in this research is based on a literature review of similar researches using the analytical research method. This analytical research carried out an in-depth Project management analysis for the hospital. The tools used were questions asked, expert judgment, analytical techniques, and maturity model tools. The results of this research will determine the maturity of the organization's project management process and a suitable PMM for the Academic Hospital.

1 INTRODUCTION

1.1 Background

AZP is the largest hospital in Suriname, operating in six different locations in Paramaribo and owning more than 70 buildings. It has a bed capacity of 510 beds and accommodates 2 laboratories, 23 medical specialties, the biggest Emergency center, and only fully equipped Intensive Care Unit (ICU). AZP is the only hospital center that provides top specialized treatments (such as Cardiac disorders, ER traumas, Eye care services, and Radiotherapy). Aside from the government, the Academic Hospital is the largest employer in Suriname with 2300 employees. (AZP strategic plan 2020)

According to its Strategic Plan, the AZP is in the process of transforming into an Academic Medical Center in Suriname (AMC- SU). The transformation is founded on three (3) pillars: Patient Care, Medical Research, Medical Education, and Paramedical Training with the focus on the following:

- ❖ Restructuring: financial stabilization and cost management
- ❖ Integrated building –and construction plan
- ❖ Organization
- ❖ Setting up centers of excellence
- ❖ Decentralization of care

Renovation of the hospital is one of the points arising in the Integrated building and construction plan. Ever since the opening of the hospital on March 9, 1966, it has never had a complete renovation. New buildings are constantly added to the existing ones. Due to the financial position of the hospital, it is not possible to do a complete renovation at once. This means that the renovation is divided into sections. Each section of the renovation is converted into a project. The projects are divided into large and small projects. The small projects are usually financed by the AZP itself, while for large projects external financial donors are recruited.

Within the AZP, the department Property Management oversees the small project and sometimes gives support to the large projects. For large projects, external project managers are hired.

1.2 Statement of the problem

The Academic Hospital has faced many problems regarding its project management approach over the last years. The projects have for a long time suffered from bad project performance and due to this a short evaluation was conducted by the department of property management to identify the reasons for not being able to deliver projects successfully.

The evaluation showed weaknesses and problems in project management in general. The lack of project structure and procedure was the main weakness causing unnecessary delay in projects. Besides structure and procedures, finance or too many stakeholders in the process are also a cause of unnecessary delay. Especially in the executing phase.

The lack of a structured way of working with projects causes the project manager to feel pressure and stressed. On the other hand, every project has another project manager with his management style. Therefore, every time a new project starts, the project managers reinvent the wheel. As a solution to deal with this problem the focus of this study will be to develop a methodology for the AZP project management process.

1.3 Purpose

The purpose of this Final Graduation Project (FGP) is to analyze the current organizational structure and project management maturity of the AZP based on the above-mentioned issues. This to create a project management methodology to be able to standardize, structure, and organize the work in the project management

process in the Academic Hospital to successfully guide and execute its construction projects.

By adopting the project management methodology, the Academic Hospital will be able to execute projects more effectively and efficiently, within its time, budget, and scope, while achieving the required quality. Through this methodology, project managers will gain greater knowledge of a project management process. Ultimately, it will allow professionalization of the department and leading to project management maturity.

1.4 General objective

To develop a project management methodology for the Academic Hospital, to organize construction projects through standardization.

1.5 Specific objectives

The specific objectives for this project are:

1. To assess the maturity of the project management process, to determine the project management strengths, improvements, and opportunities.
2. To analyze different types of project management methodologies to establish a suitable one for the AZP.
3. To propose a framework for standardization in the project management process to manage projects effectively.

2 THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

The research is conducted within the Academic Hospital of Paramaribo (AZP). The biggest hospital and the only one with the most capable facilities for medical treatments.

2.1.1 Company/Enterprise background

The Academic Hospital Paramaribo has been in operation since March 1966 under the name Central Hospital. The name of the hospital was changed to Paramaribo Academic Hospital Paramaribo (AZP) in 1969. Since 1973, the hospital has been authorized by the government of Suriname, The Ministry of Health. The AZP has a hospital facility of 26 medical wards, 2 laboratories, and a bed capacity of 510 beds with 97% capacity. (AZP strategic plan 2020)

2.1.2 Mission and vision statements

Mission

We are a leading Academic Medical Center in Suriname and the Region, based on customer-oriented services provided by Centers of Excellence that are staffed with innovative, passionate teams of professionals. What distinguishes us is our accessibility and personal care encouraged by the confidence of the entire community.

Vision

We are committed to providing high-quality health care, accessible for everyone. In our continuous aspiration to provide excellent care, we are driven by customer orientation, scientific research, and innovative strength.

2.1.3 Organizational structure

The hospital organization structure is very broad and controversial because of the different levels of services. To give a better picture of how projects are carried out within the AZP, the next two organization structures have been worked out. Figure 2 gives an overall view of the entire organization while Figure 1 gives an explanation of the property management department and persons in charge of projects.

The Property Management department is responsible for preparing and writing project proposals and managing small projects. Within AZP there are project leaders who manage these projects. For large projects with external financial donors project managers are hired and an external engineering firm does the supervision. In large projects, the property management department has a supporting role.

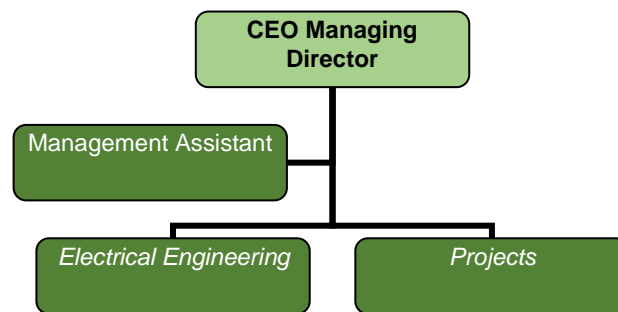


Figure 1: The Property management department organizational structure (Source: Author, 2020)

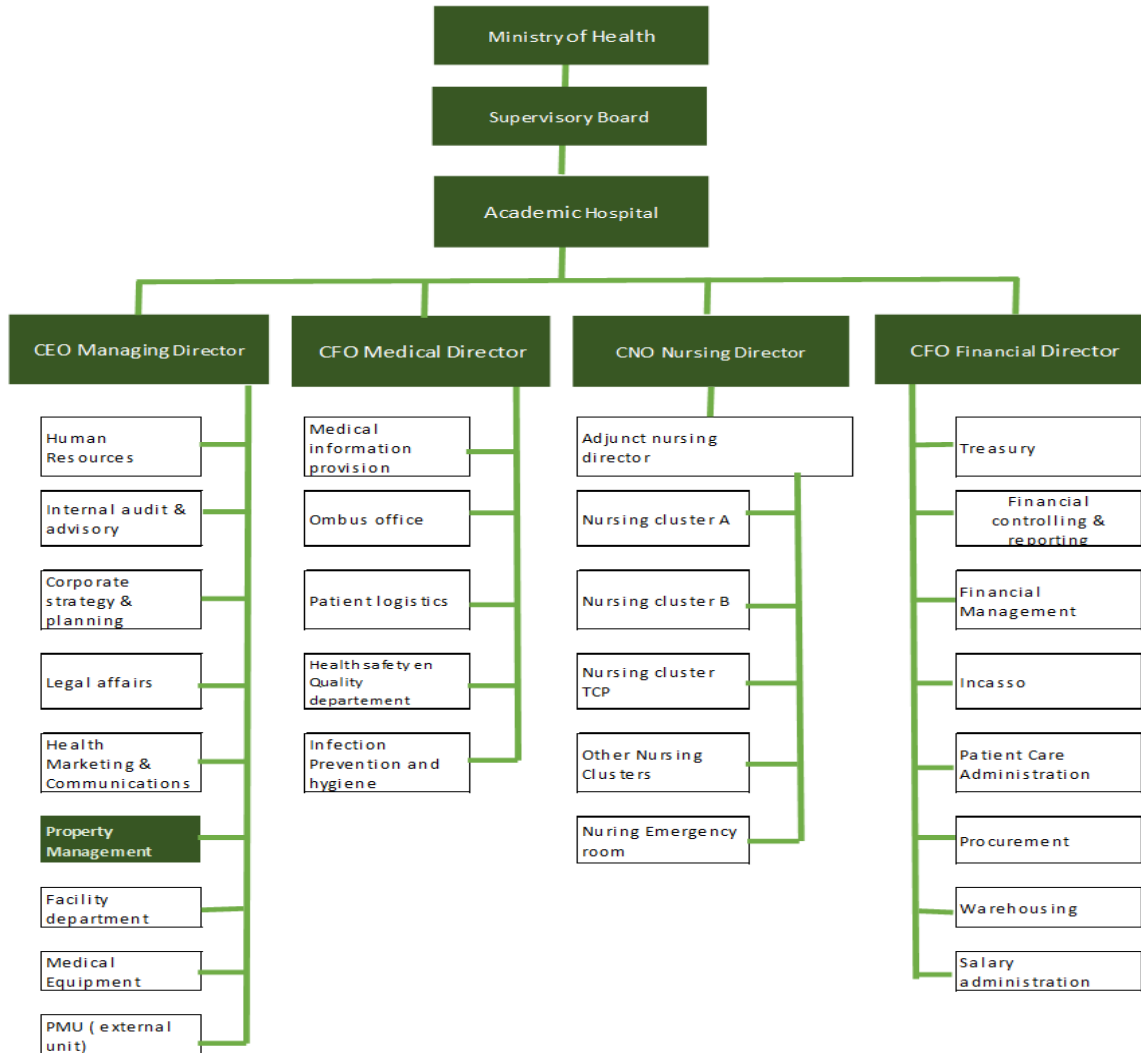


Figure 2: General organizational structure (Source: Author, 2021)

2.1.4 Products offered

The Academic Hospital offers 3 types of hospital services.

1 - Core Business

The core business of the hospital is to provide medical care and treatment for the following persons:

- Inpatients who spend the night in the hospital for observation, specific treatment, or surgery.
- Outpatients who go to the hospital for a consultation, medical treatment, medication, surgery, or ER services.

- Day patients undergoing minor or intermediate surgery (such as limited urology, ophthalmology, or ENT surgery).

2 - Enhanced services:

AZP has added some facilities or additional functions to its core to increase hospital services. These include decent rooms suitable for different levels, including satellite TV and air-conditioning, delicacies provided by an ISO 2000 certified kitchen, cleaning services, etc.

3 - Excellent Service

AZP strives to be a hospital of excellence. A view of the medical department has been transformed into a center of excellence. They provide high-level skills and excellent diagnostic tools and continuously strive to exceed customer expectations through innovation and continuous improvement.

2.2 Project Management concepts

2.2.1 Project

A project is a temporary work performed to create a unique product, service, or result. (PMBOK, sixth edition, page 4). PMBOK mentions 2 terms that clearly describe the project in its definition. A project is temporary, it can only last for a limited time. It has an outline begin and end date. All projects are one of their kind. Even if they are similar projects, they have their way of performing to achieve their objectives.

2.2.2 Project management

The PMI describes project management as the application of knowledge, skills, tools, and techniques in project activities that meet project requirements. This can be accomplished by properly applying and integrating the project management process identified for the project and enabling the organization to execute the project effectively.

2.2.3 Project life cycle

The project life cycle provides the essential basic framework for managing projects and is managed by performing a series of project management activities (called project management processes) that produce one or more outputs from one or more inputs through the utilization use of appropriate project management tools and techniques. (PMBOK, sixth edition). The management processes are:

- ❖ Initiating Process
- ❖ Planning Process
- ❖ Executing Process
- ❖ Monitoring and Controlling Process
- ❖ Closing Process



Figure 3: Project life cycle (Source: Kate Aby,2018)

2.2.4 Project management processes

Project Management Body of Knowledge (PMBOK® Guide) dictates the project management group as a very specific series of process groups that should be performed. Within the PMBOK® Guide, they are called process groups because each one contains or houses specific processes that ought to be performed. these processes give us an organizational background to successfully plan, execute, and manage a well-run project: These groups referred to as:

1. **Initiating process** - this is the stage wherein a new project formally starts. It defines the project objectives, schedule, processes, and activities to start a new project.
2. **The Planning Process** - The planning process group covers all planning elements of the project (which includes budget, timetable, and assignment of tasks to team members). The project plan will be carried out after the project is approved.
3. **Executing process** - is where the work is done. The project team starts to create deliverables here, and therefore the project manager is responsible for consequently coordinating these resources.
4. **Monitoring and controlling process** - The monitoring and control of the project are carried out throughout the project. These processes allow the project manager to track completed work, inspect and report on it. These processes run with the execution group
5. **Closing Process** - within the closing stage, the team will provide the product to the end-user, including all final project documents, lessons learned and experience collected from the project, to archive it for future use.

2.2.5 Project Management Knowledge Areas

PMI divides the large area of project management into ten (10) easy-to-understand parts, which are remarked as 10 project management knowledge areas in its "Project management knowledge system guide" (PMBOK). The project management knowledge area is consistent with the process groups, which are project initiation, project planning, project execution, monitoring and control, and project end. Each project has gone through these chronological stages. The domain of knowledge occurs in any one of these process groups. You can think of process groups as horizontal, while knowledge domains are vertical. The knowledge domain is defined by the knowledge requirements of project management. The identified project management domain is described by its composition process, practice, input, output, tools, and technology. all 10

knowledge areas are composed of their processes, practices, inputs, tools, and techniques.

These are:

1. ***Integrated Management*** - These processes involve determining what the project is, starting the project, and integrating it into a main body of work.
2. ***Scope Management*** - This area of knowledge relates to the scope of the project. The scope of the project is defined.
3. ***Time Management*** - including the process responsible for completing the project on time. The project is divided into tasks, and a start date and end date are added to each task to create a schedule
4. ***Cost Management*** - Cost management covers the complete life cycle of the project from the initial planning stage to the measurement of actual cost performance and project completion. It includes the responsibility for completing the project within the required time and also the approved cost
5. ***Quality Management*** - This area is responsible for ensuring the quality in reaching the project objectives
6. ***Procurement Management*** - This is the area of knowledge for hiring subcontractors to induce the work done and still control the time, budget, quality, and performance of the project.
7. ***Human Resource Management*** - This knowledge area is related to obtaining the right team, ensuring their satisfaction, and tracking their performance.
8. ***Communication Management*** - This is the plan of communicating with stakeholders to manage and control their participation
9. ***Risk Management*** - This area determines a way to classify and prioritize and monitor risks item by item.
10. ***Stakeholder Management*** - includes the necessary process of identifying groups or individuals that may be affected by the results of the project.

Chart 1: Project Management Knowledge Areas and processes Mapping (Source: PMI, 2013)

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

For this research, developing a project management methodology for the AZP, all the knowledge areas established in the PMBOK Guide - the sixth edition will be applied.

2.3 Project Management Methodology

2.3.1 Definition Project Management Methodology

Project management methodology is defined as a set of guidelines and principles that can be customized and applied for specific situations. In a project environment, these guidelines may be a list of things to do. The methodology can also be a specific method, a set of templates, rules, procedures, techniques, or even checklists used in the project life cycle. (Charvat, 2014). A good project management methodology will guide the project manager to complete a series of controlled, controlled, and visible activities to achieve project results (Government Commercial Office, 2009).

2.3.2 The need for a Project Management Methodology

The project methodology is only useful to the company when the task is appropriate and applicable. Many projects only focus on meeting customer needs at the initial stage, rather than having to face actual plans during actual planning throughout the project life cycle.

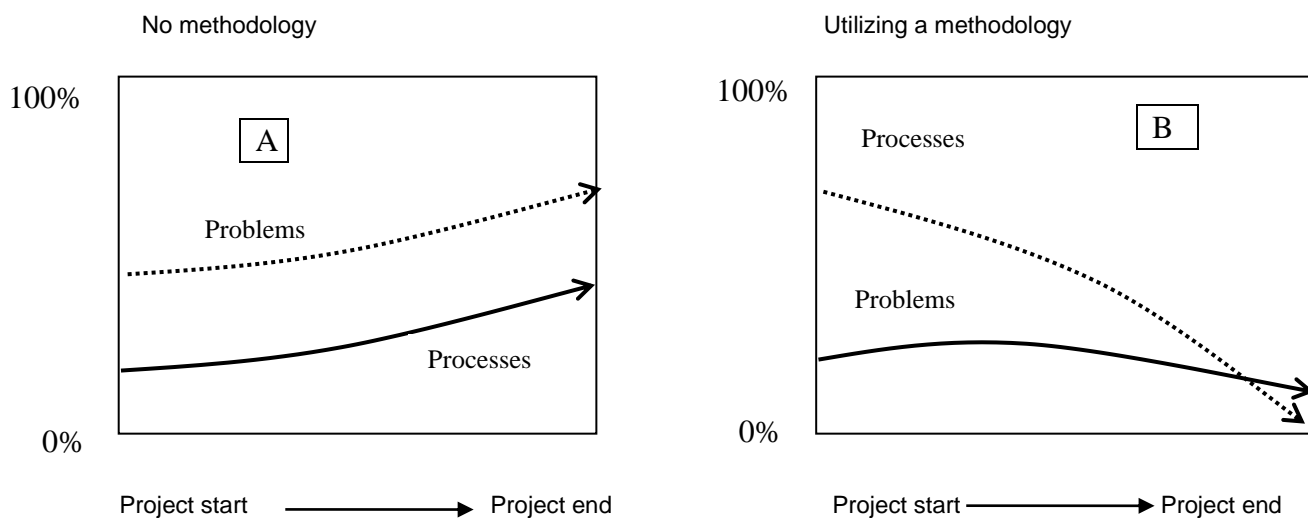


Figure 4: differences in using a methodology (Source: Jason Chartvat, 2014, p6)

Figure 4 shows that project A has no methodology and is filled with process issues as well as problems that increase in the project moves along. Additionally, project B, which has a structured methodology with a defined and operational project process, minimizes the number of problems that occur on the project. It is not contended that there will never be any problems if a project methodology is in place; it does, however, means that it is planned for all areas of the project to function while trying to meet the objectives. (Jason Charvat, 2014, p6)

Jason Charvat (2014) has identified benefits offered by a project methodology.

Chart 2: Benefits offered by a project methodology (Jason Charvat, 2014, p 19)

Benefit we Achieve	Allows us to
Better process	Define processes and introduce improvements.
Flexibility	Adapt from project to project
Integrated metrics support	Gather metrics during the project
Quality focus	Assure that all area of quality are addressed
Managing complexity	Manage complex situation
Standard approach	Complete critical documentation per approach
Consistency	Deliver project using a similar approach
Containment of all project phases	Reassess the project per phase
Project planning	Better plan project
Ability to get the job done	Guide the team to completion by the various phases
Elimination of crisis management	Reduce or eliminate any crisis
Ease of use	Easily use and implement
Knowledge	Review and improve future projects

2.3.3 How to develop a Project Management Methodology

There are two ways to choose a suitable methodology for an organization. The first is to adopt one of the industry standards Methodologies (Nicholas & Herman, 2012). There are many standard methods to choose from, and each method has its own set of rules, principles, processes, and practices. Which method you should use depends entirely on the type of project you will be working on. The second

method is to customize a standard methodology and use the baseline to develop a unique methodology for your organization.

2.3.4 Project Management Methodologies.

No method fits all projects. Some cover everything from the initial sales call to operational support. Others cover design and development aspects. Some projects are suitable for certain methods. There is a variety of standard project management methods and practices that can be used to maximize project success. These are

- **Agile**- A method that includes sub-methods, such as Scrum and Kanban. It is suited for projects that require flexibility, difficulty, or uncertain characteristics. For example, a set of services or products that have not yet been formed.
- **Scrum** - This method includes five (5) values: commitment, courage, focus, openness, and respect. Its purpose is to develop, deliver and maintain complex products through collaboration, responsiveness, and repeated schedules. The difference between Scrum and other agile project management methods is how it works through specific roles, events, and archeology. It is best suited for projects with teams of less than seven people who need a flexible method to deliver products or services.
- **Kanban** - This Method is another popular agile framework, similar to Scrum, which focuses on older versions released by the team that it works with and manages. This is an accurate way to provide high-quality results by drawing workflow process diagrams so that challenges can be identified at the beginning of the development process. Like Scrum, Kanban is also suitable for projects of small groups that require flexible ways to deliver products or services.
- **The lean** - This methodology can increase customer value while reducing customer waste. It aims to create more value for customers by using fewer resources. Lean methodology is an ideal choice for any business or organization that does not want the process itself but wants to change the way they do business.

- **The waterfall** - A waterfall is a series of designs in which the progress slides in one direction, just like a waterfall. It is best suited for large projects that require strong phases and end times or projects that are executed multiple times, where the chance of accidents during the development process is very low.
- **Six Sigma** - aims to reduce the number of errors in the process by identifying invalid content and eliminating errors in the process, thereby improving quality. The quality management methods they use are mainly art and mathematics, as well as the professional knowledge of the professionals who use these methods. It is suited for companies and large organizations that want to improve the quality and efficiency of data-driven methods.
- **PMBOK** - is a set of standard terms and guidelines for project management. It points out that there are five process groups in almost all projects. Since it is not a real project management method, but more a reference guide, you cannot implement PMI/PMBOK. However, it can be used in situations where you want to measure the best method for the project.
- **PRINCE2** - is a project management system that includes strategies, topics, and processes. It is very detailed and is a good building block for large, predictable business projects. It clarifies the content to be presented, ensures that the focus is on project success, clearly defines roles and responsibilities, determines management through alternative methods (conflicting principles of agility), and provides a common denominator like PMBOK.

The PMBOK and PRINCE2 methodologies will be used for this project.

2.4 PRINCE2

Projects IN Controlled Environments (PRINCE2) is a process-driven Project Management method. The PRINCE2 method divides projects into phases and each phase is managed separately. Each process is defined by its outgoing inputs and outcomes and specific objectives to be achieved and tasks to be performed.

(Bobby Srivastava, 2021)

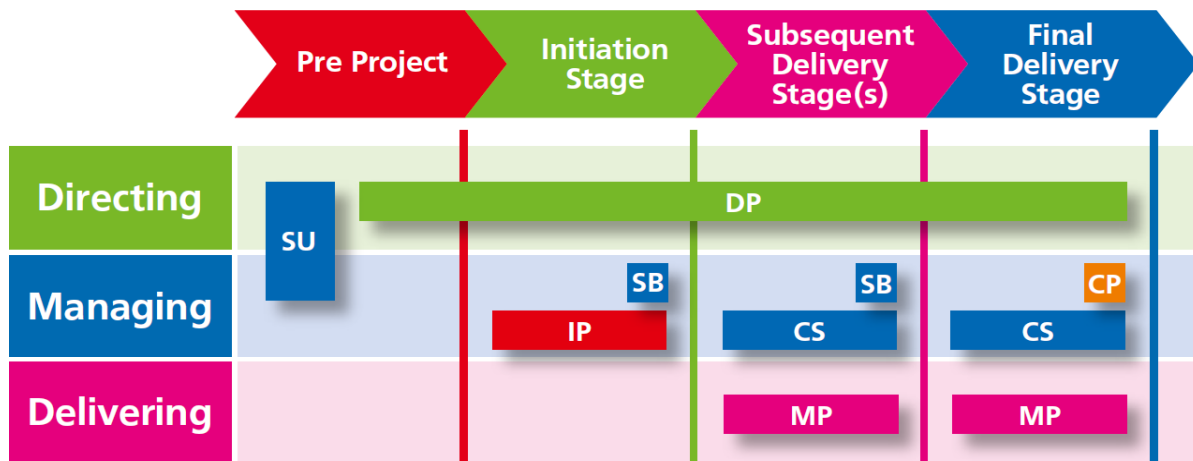


Figure 5: The seven processes of PRINCE2 methodology (Source: Bobby Srivastava, 2021)

2.4.1 The seven processes of the PRINCE2 methodology

The PRINCE2 project management provides a series of processes, which each project must go through to achieve maximum performance.

1. *Starting up a Project (SU)*- This initial process involves the activities required to ensure a viable and valuable project. The decision to proceed with the project occurs after this process is complete.
2. *Directing a Project (DP)* - This process involves the Project board who provides authority to manage the project, continuously provides authority to proceed, and provides temporary guidance when necessary.
3. *Initiating a Project (IP)*- This Process involves the planning of the project. focus on the process for the project manager, who is responsible for many tasks in the process.
4. *Controlling a Stage (CS)*- This process includes the process of authorizing and approving work packages and their monitoring and control functions.
5. *Managing a Stage Boundary (SB)*- in this process key decision points are presented to the project board on whether to proceed with the project.
6. *Managing product delivery (MP)*- The process controls the communication between the project manager and the Project team. It controls the movement of work packages from assignment to delivery
7. *Closing a Project (CS)*- It is about the steps to be taken at the end of the project.

2.4.2 The seven Principles of PRINCE2

The PRINCE2 methodology contains some basic principles that form the backbone of all projects to ensure the effective integration of PRINCE2 best practices.

1. *The business justification for projects*- There must be a clear return on investment, and time and resources should be Justified.
2. *Continuous learning*- The project team should consider the lessons learned from previous projects
3. *Clear distinction of roles and responsibilities* -Roles and responsibilities should be clearly defined for all team members so that everyone knows what they are responsible for and what is expected of them
4. *Manage by exception*: Difficult tasks are better off broken into manageable sections.
5. *Focus on product quality*: The quality of the deliverables must be constantly checked and measured by the teams. To ensure that there is no difference between the project deliverables and the project requirements.
6. *Custom approach for projects*: the method of different projects can be tailored according to the available resources and time.
7. *Focus on Products*: Everyone should know the expectations of the product in advance.

2.4.3 The seven themes of PRINCE2

The PRINCE2 methodology theme guides project planners on how to put principles into practice.

1. *Business Case*: This theme provides information on whether a project is feasible, profitable, and achievable.
2. *Organization*: The organizational context requires that the project manager record individual roles and responsibilities.
3. *Quality*: It sets the goal of focusing on the product. Quality can be an incomprehensible concept, so defining it at the beginning of a project is important to keep the work going.

4. *Plans*: The plan describes how to achieve the purpose of the project. It focuses on products, schedules, costs, quality, and benefits.
5. *Risk*: The purpose of this theme is to identify, assess and control uncertain events in the project. These are recorded in the risk log.
6. *Change*: This is about handling change requests and issues arising from the project. The idea is not to prevent change but to agree on it before the implementation.
7. *Progress*: is related to tracking the project. This allows project managers to check and control their position relative to the plan.

2.5 Project Management Maturity (PMM)

To create the best project management method for AZP, the level of Project Management Maturity (PMM) must be determined. PMM is a systematic method to establish the current project management level of an organization. Each maturity level contains the main project management characteristics, factors, and processes (Young Hoon Kwak and C. Williams, 2002)

2.5.1 Project Management Maturity Model (PMMM)

The Project Management Maturity Model (PMMM) is a formal tool to measure the project management maturity of an organization. Understanding the maturity of the organization is the key to implement organizational change strategies. Once the initial maturity and areas for improvement are determined, PMMM will provide a roadmap outlining the steps required to improve project management maturity and improve performance (PMsolution,2012). There are different PMMMs all with different characteristics and criteria. The most commonly used are:

- ❖ *Capability Maturity Model (CMM)*-This model helps to determine and analyze the current level of process maturity within the organization. It determines the problems that need to be overcome to achieve maturity.
- ❖ *Organizational Project Management Maturity Model (OPM3)*- This organizational project maturity management model is a way to enhance the

organizational benefits of effective and efficient operations. (PMI, 2004). It complies with PMBOK and aims to measure the maturity of the project and practice-based practices as an evaluation tool.

- ❖ Capability Maturity Model (CMM) - This model helps to determine and analyze the current level of process maturity within the organization. The Maturity model determines the problems that need to be overcome to achieve maturity.
- ❖ Project Organizational Project Management Maturity Model (OPM3) - This organizational project management maturity model is a mechanism to improve the strategic benefits of the organization through effective and successful project execution. (PMI, 2004). It is consistent with PMBOK and aims to measure the maturity of projects and practices based on best practices as an evaluation method.
- ❖ Kerzner Project Management Maturity Model (K-PMMM) - The Kerzner Maturity Model uses the PMBOK guidelines and follows the integrated approach of the maturity model to solve project management improvements by providing five maturity levels; common language, standard procedure, one method, measurement, and continuous improvement.
- ❖ Project Management Maturity Model (PMMM SM) - Project Management Maturity Model (PMMM SM) is a formal tool developed by PM Solutions to measure the project management maturity of an organization. (PMMM SM) will be used to evaluate the maturity of the de Project management process in AZP.

2.6 PMMM- Assessment

The model used in this assessment was adopted from the PM Solutions Project Management Maturity Model based on the nine Knowledge areas of PMBoK. The Project Management Maturity Model Provides a Plan to Advance Project Management Improvement (PMSolution, 2012).

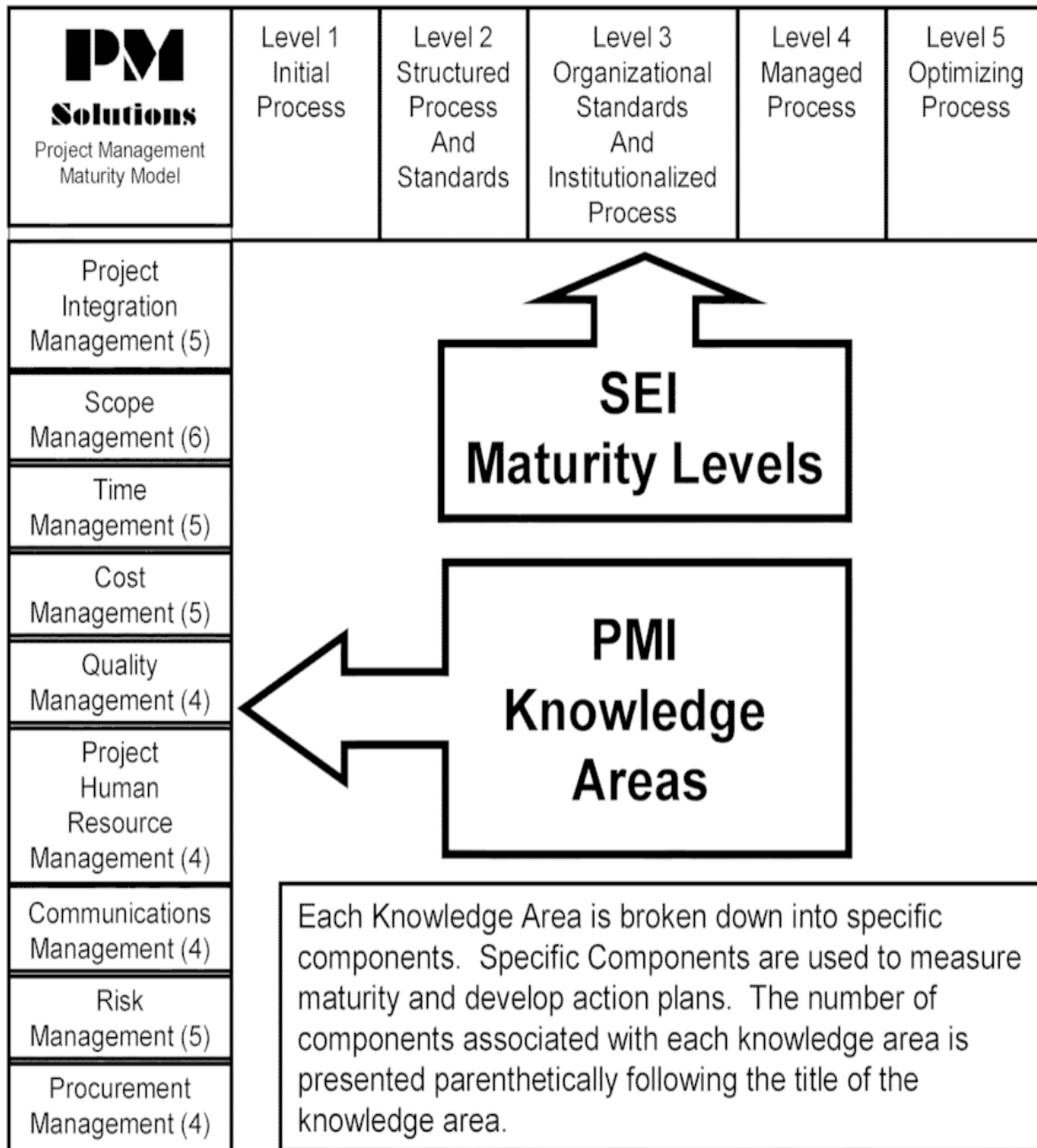


Figure 6: Project Management Maturity Model (Source: Project Management Solution, 2013)

2.6.1 Project Management Maturity Levels

There are five levels of maturity included in the PM Solutions Project Management Maturity Model similar to those in the SEI capability maturity model (Pennypacker & Grant, 2003).

Level 1 - Initial process

There is recognition of project management processes but there are not established practices and standards, and individual project managers are not held to specific accountability by any process standards. Documentation is loose and ad hoc and metrics are informally collected on an ad hoc basis. Management understands the definition of a project, that there are accepted processes, and is aware of the need for project management (Pennypacker, 2001).

Level 2 - Structure process and standards

Many project management processes exist in the organization, but they are not considered organizational standards. Documentation exists on these basic processes and management supports the implementation of project management, but there is neither consistent understanding, involvement, nor an organizational mandate to comply with all projects. Functional management is involved in the project management of larger, more visible projects and these are typically executed systematically. There are basic metrics to track project cost, schedule, and technical performance, although data may be collected/correlated manually. The information available for managing the project is often a mix between summary level data and detailed level data (Pennypacker, 2001).

Level 3 - Organisational standards and institutionalized process

All project management processes are in place and established as organizational standards. Nearly all projects use this process with a minimal exception. The management has institutionalized the processes and standards with formal documentation existing on all processes and standards. Project management processes are typically automated and management is regularly involved in input and decision making. Each project is evaluated and managed in light of other projects (Pennypacker, 2001).

Level 4 - Managed process

The project is managed by considering the past performance and future expectations. Management uses efficiency and effectiveness metrics to make decisions and understands the impacts on other projects and evaluate all projects, changes, and issues from cost estimates, baseline estimates, and earned value. Project information, project management processes, and standards are integrated with other corporate systems and processes. Processes and standards are documented. Management clearly understands its role in the project management process and executes it well, managing at the right level. Management styles and project management requirements for different sizes/complexities of projects are differentiated (Pennypacker, 2001).

Level 5 - Optimizing process

Processes are in place and actively used to improve project management activities. Lessons learned are regularly examined and used to improve project management processes, standards, and documentation. Management and organization are not only focused on effectively managing projects but also on continuous improvement. The metrics collected during execution are used to understand the performance of projects and for making organizational management decision for the future (Pennypacker, 2001)

3 METHODOLOGICAL FRAMEWORK

3.1 Information sources

In this research project, all sources of information will be used to complete the study. Information resources can be websites, libraries, libraries, or places where useful information can be collected.

3.1.1 Primary sources

Primary sources provide a first-hand account of an event or period and are considered authorized (UNSW Library, May 2019). They are original ideas or reports about discoveries or events.

Examples of a primary source are:

- ❖ Original documents such e.g. birth certificates, trial transcripts
- ❖ Government documents, statistical data, research reports
- ❖ Oral Histories: speeches, interviews, records, eyewitness accounts
- ❖ Creative artworks: music, photography, and poetry

The Primary Sources used for this research are:

- ❖ Interviews with staff of the property management department and project managers within the Academic Hospital.
- ❖ Organizational documents (such as it a strategic plan)
- ❖ Formal project documents

3.1.2 Secondary sources

Secondary sources offer an analysis, interpretation, or a restatement of primary sources and are considered to be persuasive (UNSW Library, May 2019). They tried to explain the main source. Often it involves the introduction, integration, interpretation, commentary, or test of use to convince readers of the creator's argument.

Example of secondary sources are:

- ❖ dictionaries and encyclopedias
- ❖ political commentary
- ❖ newspaper editorial/opinion pieces

The secondary sources used for this research are:

- ❖ The PMBOK Guide, sixth edition
- ❖ Book: Designs, Methods, and Practices for Research of Project
- ❖ Articles on Project Management Methodology and the benefits.
- ❖ Articles on a standard framework for a Project Management Methodology
- ❖ Publications by Harold Kerzner on Maturity analysis
- ❖ Articles on Maturity Analysis and their results

Chart 3: Information sources (Source: Author, 2021)

Objectives	Information sources	
	Primary	Secondary
To assess the maturity of the construction projects, to determine the project management strengths, improvement, and opportunities.	Interview with directing staff and other keys stakeholders	<ul style="list-style-type: none"> • Publications on Penny Parker and Grant on Maturity analysis • Articles on Maturity analysis and their results
To analyze the different types of project management methodology to establish the most suitable for the AZP.	<ul style="list-style-type: none"> ▪ AZP Organizational Structure ▪ Project Documents ▪ Strategic plan 2021 	<ul style="list-style-type: none"> • Articles on PMO's • Book: Designs, Methods, and Practices for Research of Project • PRINCE2 Study guide
To propose a framework for standardization in the Project Management process to manage projects effectively.	<ul style="list-style-type: none"> ▪ Interview with directing staff and other keys stakeholders ▪ Project Documents 	<ul style="list-style-type: none"> • Book: Designs, Methods, and Practices for Research of Project • Articles on PMM and the benefits. • Articles on a standard framework for a PMM

3.2 Research methods

Research methods are the strategies, processes, or techniques utilized in the collection of data or evidence for analysis to uncover new information or create a better understanding of a topic (University of Newcastle Library guides, 2020). It can be seen as the strategy to answer the research question. For this research, analytical research methods will be used.

3.2.1 Analytical Method

An analytical research method is a type of research that involves critical thinking skills and the evaluation of facts and information related to the research in progress. Through this research, people can use articles, data, and other important facts to find new ideas for the materials being produced. From this information, a hypothesis can be proved or an idea can be supported. (What is analytical research, 2016)

Chart 4: Research methods (Source Author, 2021)

Objectives	Research Method
	Analytical Research Method
To assess the maturity of the construction projects, to determine the project management strengths, improvements, and opportunities.	To assess the maturity level of the organization
To analyze the different types of project management methodology to establish the most suitable for the AZP.	To develop a methodology for the AZP
To propose a framework for standardization in the project management process to manage projects effectively.	To create concepts of standard templates

3.3 Tools

The tool is defined as something (as an instrument or apparatus) used in operating or necessary in the practice of a vocation or profession (Merriam-Webster Inc., 1996). For this research, the following tools are used:

- ❖ Communication
- ❖ Expert judgment
- ❖ Analytical techniques

3.3.1 Communication

According to Project Management Institute (2013), interactive communication is communication between two parties performing a multidirectional exchange of information.

3.3.2 Expert Judgment

Almost all knowledge areas use expert judgment, which is a judgment based upon expertise in an application area (Project Management Institute, 2013). Expert judgment can be provided by any individual or group of persons with specialized education, knowledge, skill, training, or experience

3.3.3 Analytical techniques

Project Management Institute (2013) defines analytical techniques as various types of techniques used to evaluate, analyze or forecast potential outcomes. Analytical techniques are sometimes based on the experience of the person who uses them.

Chart 5: Tools (Source Author, 2021)

Objectives	Tools
To assess the maturity of the construction projects, to determine the project management strengths, improvement, and opportunities.	<ul style="list-style-type: none"> ▪ Communication ▪ Analytical techniques
To analyze the different types of project Management Methodology to establish the most suitable for the AZP.	<ul style="list-style-type: none"> ▪ Analytical techniques ▪ Expert Judgment
To propose a framework for standardization in the Project Management process to manage projects effectively.	<ul style="list-style-type: none"> ▪ Analytical techniques ▪ Expert Judgment

3.4 Assumptions and constraints

Project Management Institute (2013) defines assumptions as a factor that is considered certain during the planning process. If proven false, these assumptions can have an impact on the research (Project Management Institute, 2013).

Constraints on the other hands are limiting factor that affects the execution of a process and is generally associated with scope, time, and cost (triple constraint) (Project Management Institute, 2013). For this research, the assumptions and constraints are shown in the table below.

Chart 6: Assumptions and constraints (Source Author, 2021)

Objectives	Assumptions	Constraints
To assess the maturity of the construction projects, to determine the project management strengths, improvement, and opportunities.	<ul style="list-style-type: none"> ▪ The project documentation will always be available ▪ The meeting will be arranged flexibly. ▪ The staff will always be available to provide the information 	3 months is a Limited time for an in-depth analysis.
	AZP will have a low level of maturity	AZP will have a high maturity level
To analyze the different types of project Management Methodology to establish the most suitable for the AZP.	Choose a project Management Methodology	The Board of directors doesn't see the need for the project management methodology
	The PMM will suitable for the AZP	The Board of directors doesn't see the need for the project management methodology
	AZP will have a basic structure in its management process	AZP has no structure in its project management approach
To propose a framework for standardization in the Project Management process to manage projects effectively.	Standardization will enhance the success of the project management process of the AZP	The Board of directors doesn't see the need for the Project Management Methodology

3.5 Deliverables

Deliverables are a unique and verifiable result that is produced to complete a process (Project Management Institute, 2013). The deliverables that are generated for this research are shown in the table below.

Chart 7: Deliverables (Source: Author, 2021)

Objectives	Deliverables
To assess the maturity of the construction projects, to determine the project management strengths, improvement, and opportunities.	A Maturity Analysis Report
To analyze the different types of project Management Methodology to establish the most suitable for the AZP.	A suitable PMM for the AZP
To propose a framework for standardization in the Project Management process to manage projects effectively.	Proposed framework for standardizing

4 RESULTS

4.1 Maturity assessment respondents

To determine the maturity of the project management process for construction projects within the Academic hospital, six (6) people were selected to participate in the survey. They are the only persons who are busy with the project management processes and appointed by the Management of Academic Hospital.

The selected people were:

- ❖ Two (2) project manager for large projects
- ❖ Project manager small projects from the property management department
- ❖ Project leader from the property management AZP
- ❖ One (1) civil engineering consultant

4.2 Maturity Methodology

The maturity assessment was done through the following steps:

1. Project document review;
2. Questionnaire survey to evaluate the project management process of the selected department.
3. Using the five-level PM maturity model, to assess the collected information and determine the maturity of each knowledge area.

4.3 The maturity assessment results

Most of the respondents/answers in the survey were consistent. This made it easier to analyzed the answer. This survey resulted in different maturity levels for each knowledge area. The results are presented in a chart and each knowledge area level is described as follows.

Charts 8: Results Project Management Maturity Survey (Source: Author, 2021)

Project Management Maturity Results							
		SEI Maturity levels					
PMI Knowledge Areas	Level 1 Initial Process	Level 2 Structured Process and Standards	Level 3 Organizational Standards and Institutionalized	Level 4 Managed Process	Level 4 Optimizing Process	Result	
Project Integration Management							
1	Develop project charter	1					
2	Develop a project management plan	1					
3	Direct and manage project work		2				
4	Monitor and control project work		2				
5	Perform integrated change control	1					
6	Close project or phase		2				
						1	
Project Scope Management							
7	Plan scope management		2				
8	Collect requirements		2				
9	Define scope		2				
10	Create WBS	1					
11	Validate scope		2				
12	Control scope		2				
						1	
Project Time Management							
13	Plan schedule management			3			
14	Activity definition			3			
15	Activity sequencing			3			
16	Estimate activity resource			3			
17	Estimate activity duration			3			
18	Schedule development			3			
19	Schedule control			3			
						3	
Project Quality Management							
20	Plan quality management			3			
21	Perform quality assurance			3			
22	Quality control		2				
						2	
Project Human Resource Management							
23	Plan HRM		2				
24	Acquire project team		2				
25	Develop project team			3			
26	Manage project team			3			
						2	

Project Communications Management							
27	Plan communications management			3			
28	Manage communications		2				
29	Control communications			3			
							2

Project Risk Management							
30	Plan risk management		2				
31	Identify risks		2				
32	Perform qualitative risk analysis		2				
33	Perform quantitative risk analysis		2				
34	Plan risk responses		2				
35	Control risks		2				
							2

Project Procurement Management							
	Plan Procurement Management			3			
	Conduct procurements			3			
	Control procurements			3			
	Close procurements			3			
							3

Project Stakeholder Management							
	Identify stakeholders		2				
	Plan stakeholder management	1					
	Manage stakeholder Engagement		2				
	Control stakeholder engagement	1					
							1

Project Cost management							
	Determine Budget		2				
	Cost estimating		2				
	Cost budgetting		2				
							2

Chart 9: Project Management Maturity result level description (Source: Author, 2021)

PMI Knowledge Areas	Result	SEI Maturity level description
Project Integration Management	1	Initial process
Project Scope Management	1	Initial process
Project Time Management	3	Organizational standards and institutionalized
Project Quality Management	2	Structured process and standards
Project Human Resource Management	2	Structured process and standards
Project Communications Management	2	Structured process and standards
Project Risk Management	2	Structured process and standards
Project Procurement Management	3	Organizational standards and institutionalized
Project Stakeholder Management	1	Initial process
Project Cost Management	2	Structured process and standards
Average maturity level	1.9	

According to the results in chart 9, the following is concluded about the maturity of each knowledge area:

1. *Project Integration Management*- The maturity of this knowledge area is 1. Wich said there is very little knowledge about the management of the integration phase here. A view component has been implemented, but there are no established practices and standards.
2. *Project Scope Management* -The result for the maturity of scope management is level 1. This level of maturity states that the organization has recognized and defined basic processes for scope management.
3. *Project Time Management*- This knowledge area resulted in a maturity level 3. This means that repeatable documents and processes were available and applied to most of the projects.

4. *Project Quality Management*- Quality management has a maturity level of 2. Quality management, assurance, and control levels are low and do not apply to all projects.
5. *Project Human Resource Management*- The maturity of this knowledge area is level 2. This shows that the basic process of human resource management has been clearly defined, but it has not been applied to all projects. The management supports and encourages the management process of stakeholders more in project management practice.
6. *Project Communication Management*- Project communication management is at maturity level 2. This indicates that all organizational standards and repeatable processes have been applied to most projects. Meetings, Minutes of meetings, and weekly status reports are used to plan the communication management of all projects.
7. *Project Risk Management*- The maturity of this knowledge area is at level 2. There is a basic standard project risk management plan available to identify, analyze and mitigate risks. This means that even if the risk is identified, it cannot be managed properly.
8. *Project Procurement Management*- The maturity of project procurement is 3. This shows that all standards and repeatable processes have been applied to all projects. There are standard working procedures for carrying out the procurement process.
9. *Project Stakeholder Management*- The maturity of this knowledge area is level 1. Stakeholders often attend regular meetings to discuss wishes, changes, or other matters. However, not all the principles of stakeholder management have been used, especially controlling participation in management.
10. *Project Cost Management*-the maturity level for cost management is 2. There is a standard Excel template that is used in both small and large projects. However, this standard document is not institutionalized.

The average maturity rate for the AZP project management is 1.9 (between level 1 and level 2), indicating that there is a basic structured process, in which the basic process and basic standard documents are repeatable between projects, but are not established Practices and standards. This is why they are not implemented as standards on all projects (mostly large projects).

4.4 Comparison Project Management Methodologies

There are many different methods, which are usually applied to project management. To determine the appropriate project management method for AZP, the two most interesting methods, Projects IN Controlled Environments-PRINCE2, and the Project Management Body of Knowledge (PMBOK) Guide (PMBOK) were compared. This comparison between the PMBOK guide and the PRINCE2 method is on the differences between elements such as structure, processes, weaknesses, and strengths.

General differences

- ❖ The PMBOK process is defined as a standard for project management and is typically described as descriptive. This means that it describes project management techniques, process inputs and outputs, and knowledge areas but does not explain how to use them.
- ❖ PRINCE2 is defined as a standard, which means it specifies what should be done, who should do it, and when it should be done on a project.

Structure differences

- ❖ The "PMBOK® Guide" is organized into ten knowledge areas, five process groups, 49 processes, and 132 tools and technical references.
- ❖ PRINCE2 is composed of four integrated elements: seven principles, seven themes, seven processes, and 41 Activities tailored to the needs of the project environment.

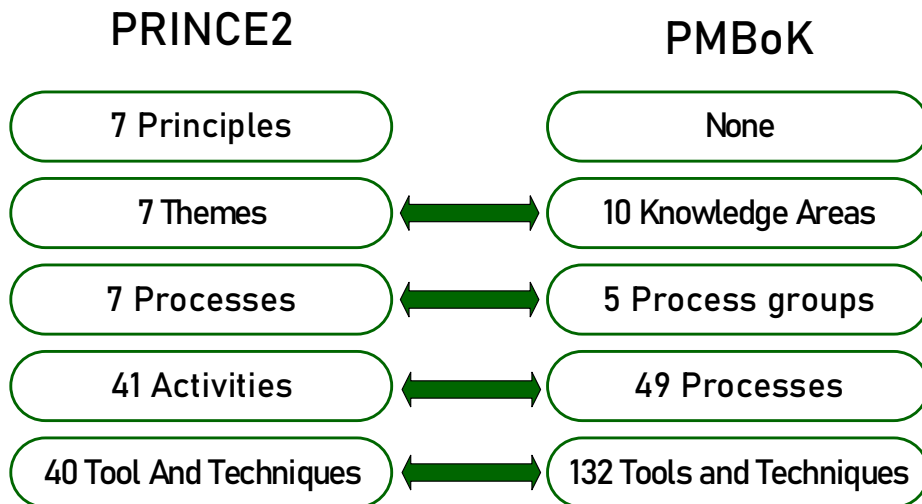


Figure 7: Structure differences PMBoK- PRINCE2 (source: Author, 2020)

The PRINCE2 themes are very similar to the knowledge areas in the PMBOK Guide. These themes are applied to all seven processes, which define who is responsible for when and what. The PRINCE2 processes are similar to the "process group" in the PMBOK Guide. Each PRINCE2 process is divided into activities. There are 41 in total. These activities are very similar to the 49 processes in the PMBOK Guide. The "PMBOK guide" tools and techniques cover all tools in PRINCE2.

Strength differences

- ❖ The "PMBOK® Guide" covers all of the PRINCE2 topics through a series of knowledge areas. It also includes procurement management, which PRINCE2 does not cover.
- ❖ PRINCE2 provides a detailed description of the many roles of the project management team. In the "PMBOK® Guide", the focus is primarily on the project manager role.

Weakness differences

PRINCE2 is the lack of tools and techniques. PRINCE2 describes only 40 Tool. "PMBOK® Guide" provides a comprehensive description of 149 tools and techniques.

Project management processes

The following is a comparison between the PRINCE2 project management process and the PMBoK project management process.

1. *The Starting up phase*- In both methodologies (PMBOK® Guide and PRINCE2) the start-up phase is the beginning of understanding the project. The reason for the project, stakeholder participation, and deliverables.
2. *Directing a project* - There is no equivalent process group for the "directing a project" process in the PMBOK guide. This is because "project management" is done by the project board, which does not have an equivalent role in the PMBOK guidelines.
3. *Initiating a Project (IP)*- In both cases, the Process includes project planning.
4. *Closing a project*. The "close project" process in PRINCE2 is similar to the "close process group" in the PMBOK® guide. In both methods, this is the delivering the final product.

4.5 Project Management Methodology –AZP

For the AZP, it is difficult to choose one of the comparison methods. The comparison shows that these methods interrelate with each other. To better manage the project, PMBOK should be recommended. But the "PMBOK® Guide" is not a method. Even the "PMBOK® Guide" said in one of its earliest pages: "The standard is a guide, not a specific method. ("PMBOK® Guide", p. 2). For project management decisions, who, when, and where and with a specific structure, then PRINCE 2 will be a perfect choice. However, the main goal of the project is to choose a suitable method for AZP. To solve the problems that AZP has to cope with (lack of structure and procedures and insufficient knowledge), a simple

blended methodology of PMBOK guide and PRINCE2 is propose. Because this will be a method for the AZP, the method will be called "MetAZ"-Methodology AZP.

4.5.1 The MetAZ

As mentioned above, the Metaz is a simple project management method to manage the construction projects in AZP, created by the combination of PRINCE2 and PMBoK. The Metaz consists of various management steps, which must be managed separately. Each process step has its own specific goals that need to be achieved. The Metaz consists of seven (7) project management processes and four (4) principles.

Based on an early informal interview with the department property management, where the following major issues were identified: Lack of good planning, lack of communication, long wait for multiple participants, lack of lessons learned, and lack of tools and strategies, the Metaz will focus on

- ❖ Recording all decisions made
- ❖ Constant approval between the project team and the project board
- ❖ Description of the different roles and related responsibilities
- ❖ Constantly capture the lessons learn
- ❖ Using the proper tool and techniques within the process steps.

4.5.2 MetAZ project management processes

Metaz has seven project management steps. Each construction project must go through all the steps to achieve maximum efficiency. These are seven (7) steps, which are:

1. Development
2. Directing
3. Planning
4. Execute
5. Monitoring & Control

6. Verification
7. Closing

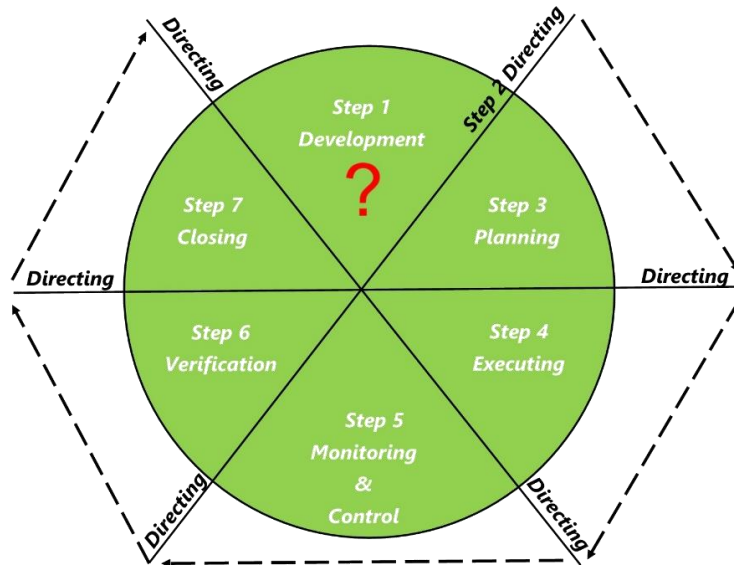


Figure 8: The 7 process steps of the Metaz methodology (Source: Author 2021)

4.5.2.1 Step 1 - The development of a project

This is the step before the start of each project. During this step, the project idea is transformed into a formal project. Ideas, business needs, or requests can come from any discipline within the academic hospital. The board of directors or the minister of health can also request a project. In both cases, the project request will be discussed with the Project Management Office (PMO) first. The PMO prepares the project proposal together with the initiators. The project proposal will describe the proposed project, its purpose, results, and therefore the steps to be taken to complete the project. If the project is similar to a previously completed project, the lessons learned will be added to the proposal. Lessons learned will help to improve the effectiveness and efficiency of new the project. Several key elements should be included in the project proposal:

- ❖ *Project background* –background information on the requested department, the problem statement, challenges, or opportunities that exist for the project.
- ❖ Objectives- The expected project outcome
- ❖ Project scope - What are the steps or phases of the project? What elements does this project contain? How will the goal be achieved through this project?

After the proposal is completed, it will be submitted to the project board for approval

4.5.2.2 Step 2 - Directing a project

In this step, the focus is on the project board. The project board is a permanent group, it has full authority to make decisions and approve the management and implementation of the project. The project board consists of: the technical director, HSEQ Manager, PMO representatives, engineers, and the chief or operations manager from the different disciplines. (only the chief or operations manager from the different disciplines will constantly change)

This step has 2 important parts:

First, the part where it gives the GO/No-Go sign to proceed with the Project. In this section, the project board approves or disapproves the project proposal. If the proposal is not approved by the project board, the proposal will end immediately. However, if the project proposal is approved, the Project Board will appoint a project manager to manage the project on their behalf and produce a Statement Of Work (SOW), which is a formal document that defines the scope of work. Work such as the tasks assigned to the project manager and team members and the results that must be delivered by the project. This part only occurs once at the beginning of the project cycle.

The second part of this step is the continuous interaction between the project board and the project manager. At the end of each step, the project manager will

seek continuous approval to continue the process by submitting a progress report and lessons learned document to the Project board. The progress report will focus on project achievements, unresolved issues, lessons learned, and upcoming activities. The project board will provide advice and guidance to the project manager when necessary to ensure that the deliverables of the project are met. If there are any adjustments in the report, these shall be made based on the feedback of the board.

4.5.2.3 Step 3 - Planning the project

The project proposal was approved, SOW was created and a project manager and team were appointed. The project manager will begin to write the project charter to formally authorize the existence of the project and provide the project manager with the authority to apply organizational resources to project activities. "(PMI, 2004,) Therefore, the project proposal and SOW will be used as input to the project charter, and the project charter will be submitted to the project board

Once the board of directors approves the charter, the project manager can begin writing the project management plan (PMP). The PMP will define how to execute, monitor, and close the project, so it is the most important document in the project. It should include the following parts:

- ❖ *An executive summary*: a short description of the content of the report.
- ❖ *Project scope and deliverables*: an overview of the project content. And a description of how to break down the project into measurable deliverables
- ❖ *A Project schedule*: A Gantt chart that contains an overall view of project tasks and milestones.
- ❖ *Project resources*: budget, personnel, and other resources needed to achieve project goals.
- ❖ *A Risk Management plan*: a list of potential project factors and a plan for how you can identify, solve and manage problems.
- ❖ *A Communication management plan*: plan for how to manage communication between the team and stakeholders during the project.

After the project management plan is completed, the project manager will develop a Work Breakdown Structure (WBS) to break down the work to be executed in manageable sections for delivery. To avoid confusion over the roles and responsibilities during project activities, a role and responsibility matrix will be developed to clearly define who will complete which section of the work. The activities in the WBS will be a guide to other aspects of the planning. The WBS will be used:

- ❖ To develop the project schedule: a time will be assigned to each activity
- ❖ In human resource planning: the activity will help to define what skills will have to be outsourced. Technical expertise will be assigned to each activity
- ❖ To create a resource estimate: for each activity, the needed material will be listed
- ❖ To create a cost estimate: with the resource estimate the cost estimate can be created

In the planning step, it is important to know whose interests may be positively or negatively affected as a result of project execution or successful project completion. This is done by developing a power/interest grid to manage all the stakeholders. For the Academic Hospital, the stakeholders may include customers, team members, sponsors, and external companies. The best way to manage these stakeholders is through communication such as minutes of meetings and status reports.

4.5.2.4 Step 4 - Executing

The project management plan, project charter, and role and responsibility matrix are all in place. PMT will perform all planned activities in this step. By continuously tracking the progress of the project, ensuring that phases and work delivery are aligned with the progress of the project, and monitoring the performance of the accounting system, the focus of the project manager will shift to implementation and direction. In this step, communication with key stakeholders is very important.

This can determine agreements, document actionable items, identify risks/issues, and make team members responsible for tracking to produce results.

4.5.2.5 Step 5 - Monitoring and Controlling

As mentioned in the executive step the progress of the project needs to be monitored regularly. Monitoring and control measures take place according to the action phase. Project management monitoring and controlling involves actively reviewing the status of the project. Within these steps, there are specific responsibilities required to prioritize while monitoring and controlling in project management. This includes:

- ❖ *Report key performance indicators (KPI)*- In the project management plan, a series of checkpoints or milestones have been established for the project. During the project monitoring phase, maintaining Key Performance Indicators (KPIs) is essential to ensure that the project team is on track.
- ❖ *Monitor change requests*- In this step, the PM needs to review and resolve the change requests of team members, the project board, and other stakeholders.
- ❖ *Keep track of scope*- If the project board may decide to change its view of the scope of the project after the start of work, the project manager may need to reconsider its strategy to assess whether to accommodate the expanded scope within the original timetable or budget. If not, the PM needs to go back to the planning stage to clarify expectations, update the project charter, clarify new roles and responsibilities, and then proceed with project execution.
- ❖ *Control costs, quality, and risk- Controlling*- In this step, the project manager:
 - i. Track and report on budget updates.
 - ii. Conduct quality control to ensure that the deliverables meet customer expectations.
 - iii. Deal with risks that may hinder progress. It is necessary to regularly check the list of potential risks, assess the possibility of their occurrence, and formulate mitigation measures as needed.

4.5.2.6 Step 6: Verification

At this stage of the project, implementation and monitoring, as well as control measures have been completed or are nearing completion. Here, the final product that can be delivered will be tested to see if it is built according to the information provided and if it meets all the quality requirements of the end-user.

4.5.2.7 Step 7: The closing of the project

In the closing step, the project manager will arrange a project closing meeting with the project board, PMO, project sponsor, end-user, and the entire project team. At the meeting, the project manager will hand over the project report to the project board. The report will formally be signed by the project board. By signing the report, the project board formally accepted and approved the closure of the project and confirmed that all project activities were reviewed, completed, and approved

4.5.3 The MetAZ principles

The MetAZ has four (4) principles. Which are the fundament on which all projects will be built on. The principles are very much like four of the principles of PRINCE2. These are.

1. *Learn from Experience*: -Capturing Lessons Learned is very important to the life of the project. They can be used to identify project management successes and failures or be used to prepare a new project. By not learning from project failures and improvements, similar problems or situations may repeat themselves.
2. *Define Roles and Responsibilities* – those involved in the project should know what they and others are doing. This involves understanding who makes decisions.
3. *Constant focus on quality* - Poor quality practices in construction projects lead to wasting time and materials and directly affect project costs
4. *Manage by Stages* - projects are best managed when they are divided into manageable phases.

4.5.4 The MetAZ project flowchart

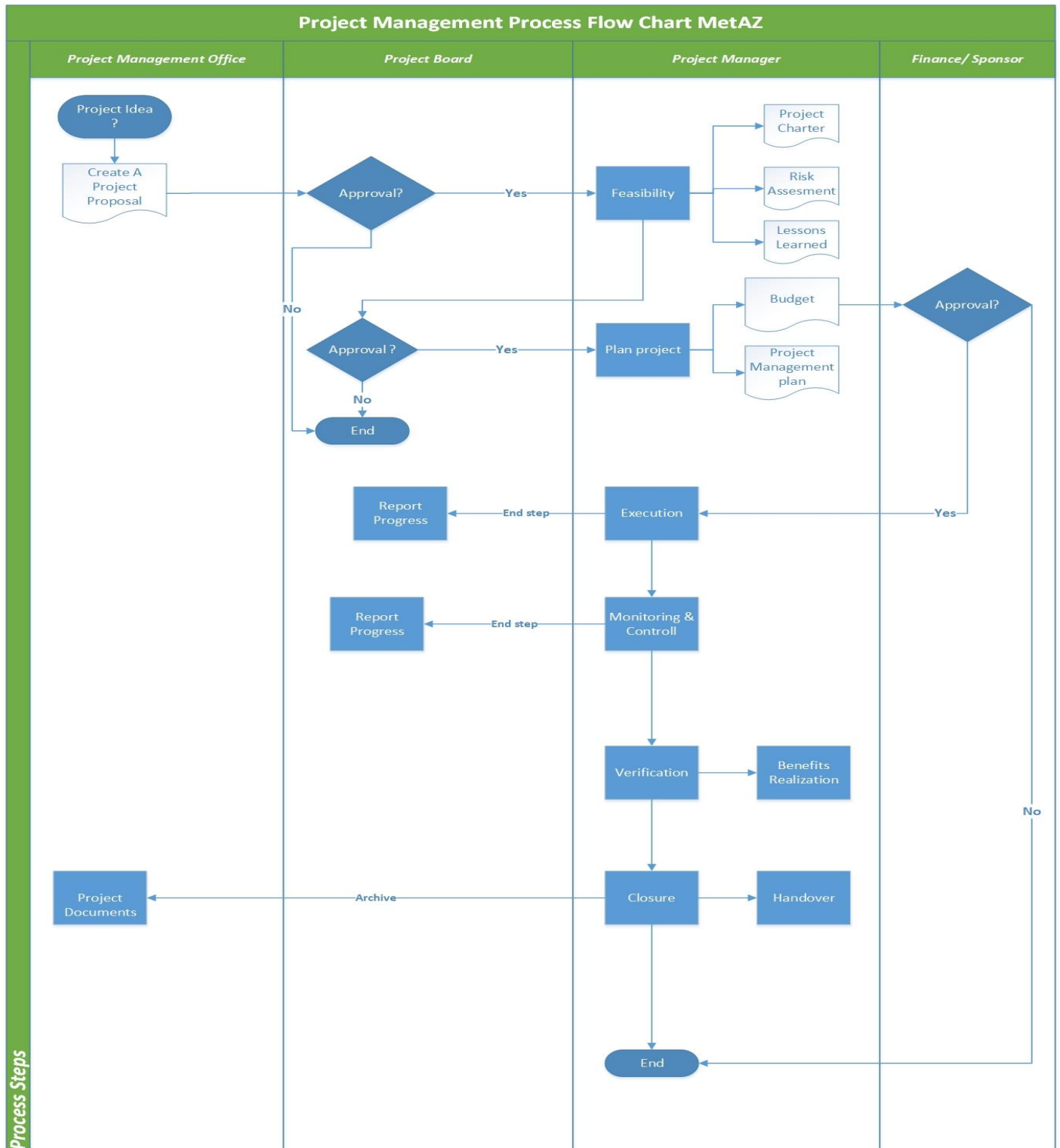


Figure 8: The flow chart of the Metaz methodology (Source: Author 2021)

4.5.5 The MetAZ project templates

The templates needed to implement the MetAZ will be presented in the appendix. Chart 11 below contains a complete overview of the designed templates that will define the structure within the MetAZ and the steps in which they will be used. These Templates will be presented in Appendix 5 till 15

Chart 10: MetAZ templates (Source, Author 2020)

Steps	Templates	Comments
Development	<ul style="list-style-type: none"> ✓ Project proposal ✓ Project Charter ✓ Role and responsibility Matrix 	Appendix 5 Appendix 6 Appendix 7
Directing	<ul style="list-style-type: none"> ✓ Statement of work ✓ The lessons learn report ✓ Progress Report from each step 	Appendix 8 Appendix 10 Appendix 11
Planning	<ul style="list-style-type: none"> ✓ Stakeholder Management ✓ Project management plan 	Appendix 12 Appendix 13
Executing	<ul style="list-style-type: none"> ✓ Issue log ✓ Minutes of Meeting 	Appendix 9 Appendix 14
Closing	<ul style="list-style-type: none"> ✓ project closure Report 	Appendix 15

4.5.6 The implementation of the MetAZ

The MetAZ method uses a predictive approach. it defines the different stages of project planning from start to finish. This gives all the requirements and information required for the entire project upfront.

Because the necessary templates for the new method are already available, the implementation can be straightforward. However, two areas require special

attention: knowledge and operations. These two elements must go inseparably to determine a mature project management culture.

4.5.6.1 The knowledge area

To implement the new method within the organizational structure, all project managers, project coordinators, and others involved in projects must have a basic understanding of project management and project methodologies. Those who are involved, based on their experiences, are required to take a basic project management course. The following local institutes provide project management training:

- ❖ SMART Suriname Business academy
- ❖ ABC Education and training
- ❖ Polytechnic College Suriname- University of applied science
- ❖ IMKB institute for small and medium-sized companies

4.5.6.2 The operational area

Given that the MetAZ is a rigid and structured project management methodology, it is proposed that the implementation of the new method is done as a pilot, using the following steps:

Step 1 - MetAZ introduction:

The AZP's board of directors, shareholders, and project managers must all be introduced to the new methodology. The method of the implementation must be explained from start to finish. Particularly, how the implementation will impact the project performance. This would secure the necessary formal authority during the implementation process.

Step 2 - Team implementation:

If the MetAZ is approved by the board of directors, a team must be formed to put this new methodology into action. It would be ideal if the Academic Hospital had a Project Management Office to oversee the MetAZ implementation. Because this

department does not yet exist, the implementation can be led by the property management department. This department has extensive project management knowledge, which is required for the MetAZ's successful implementation.

Step 3 - Pilot implementation preparation:

Before establishing MetAZ as the new AZP Project Management method, a pilot must be conducted. This will determine what benefits the MetAZ truly brings the hospital, but also what the bottlenecks are. A small and simple project must be identified for this pilot. To have effective project management the full support of all stakeholders is needed. Without their involvement in the process, it will be impossible to change the way an organization behaves in the long term.

During the preparation of the pilot implementation, it is also important to discuss the expected benefits from the hospital for this method.

Step 4 - Data collection:

During the implementation, there will be questions on how the implementation will affect project performance and whether the project managers will stick to the MetAZ. If there is no guide on how to work with the new PMM, there is a risk of falling back to old ways of working with projects. As a result, the implementation team must guide MetAZ throughout the project and collect all of the benefits of the PMM at different stages of the project.

Step 5 – Pilot analysis:

The benefits of the various stages of implementation must be compared at the end of the pilot project. This can easily be accomplished in a table divided into four columns with the theoretical benefits listed in the first, the MetAZ benefits listed in the second, the hospital's desired benefits listed third, and the benefits after the pilot listed in the last column. The analyzing pilot result will be used to bring corrections were necessary for the new method to the development of a strong and mature project management culture within the Academic hospital.

Step 6 – MetAZ Implementation:

After the new method has been adjusted, the official implementation can begin, keeping in mind that developing a mature project management culture takes time, patience, and effort.

5 CONCLUSIONS

- 1) The Methodology AZP (MetAZ) is developed to standardize the project management process within the Academic Hospital. The MetAZ consists of seven (7) project management processes and four (4) Management principles. Each process will be managed separately and have its own specific goal that needs to be achieved. The four (4) principles are the fundament on which all construction projects will be built.
- 2) A maturity analysis was done base on the Project Management Maturity Model (PMMM) from the project management solution. From the results of the assessment, it is concluded that the overall project management maturity at the Academic Hospital is between level 1 en 2. This indicates that the Academic Hospital uses a lot of basic standards resources in the implementation of most projects, especially large projects. These Processes are repeatable across the projects. However, the knowledge areas are not standardized and processes are not applied properly and effectively.
- 3) Two (2) project methodologies (PMBoK and PRINCE2) were analyzed and compared. It was assumed to choose one methodology for the Academic Hospital to work with. During the research, this assumption was proven wrong. The results of this comparison show that none of these two project methodologies will suffice, but rather a combination of both. Based on the problems the Academic Hospital is dealing with (lack of structure and procedure).
- 4) Ten (10) templates are created to define the project structure within the Methodology AZP (MetAZ) to manage the projects effectively.

6 RECOMMENDATIONS

Based on the research the following is recommended:

1. To share the new Methodology throughout the organization. This will establish standardization within the hospital. The project managers and the project team will use this method as a blueprint.
2. To Established a Project Management Office (PMO). The PMO should be responsible for implementing the new methods to maintain the standards of project management throughout the hospital. This will help the project to proceed smoothly, complete on time, and produce high-quality deliverables.
3. To Add a technical director to the board of directors. The technical director will be able to explain the necessary technical information to the other directors if needed. This will help make quick decisions based on the project, which will result in enhancing project execution and project efficiency.
4. To provide formal training or education based on the project management knowledge areas, including organizational standards and project management procedures for project managers. This can improve the ability to easily implement all standard processes for all projects, and can improve departmental and organizational performance, project deliverables, and organizational changes.

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8 APPENDICES

Appendix 1: FGP Charter

PROJECT CHARTER	
Formalizes the project start and confers the project manager with the authority to assign company resources to the project activities. Benefits: it provides a clear start and well-defined project boundaries.	
Date	Project Name:
October 26 th , 2020	Project Management Methodology for construction projects within the Academic Hospital
Knowledge Areas / Processes	Application Area (Sector / Activity)
<p>Knowledge areas:</p> <ul style="list-style-type: none"> ✓ Project Integration Management ✓ Project Scope Management ✓ Project Schedule Management ✓ Project Cost Management ✓ Project Quality Management ✓ Project Resource Management ✓ Project Communications Management ✓ Project Risk Management ✓ Project Procurement Management ✓ Project Stakeholders Management <p>Project Management processes:</p> <ul style="list-style-type: none"> ✓ Initiation ✓ Planning, ✓ Execution ✓ Monitoring and controlling ✓ Closure 	Construction Area
Start date	Finish date
October 26 th , 2020	May 11 th , 2021
Project Objectives (general and specific)	
<p>General objective</p> <p>To develop a Project Management Methodology for the Academic Hospital, to organize construction projects through standardization.</p> <p>Specific objectives</p> <ol style="list-style-type: none"> 1. To assess the maturity of the project management process, to determine the project management strengths, improvements, and opportunities. 	

2. To analyze the different types of project management methodologies to establish the most suitable for the AZP.
3. To propose a framework for standardization in the project management process to manage projects effectively

Project purpose or justification (merit and expected results)

The construction projects within the Academic Hospital have faced many problems regarding their management approach over the past years. The lack of structure and procedure causes weakness and problems in project management in general, such as delays and errors. The aim of this Final Graduation Project (FGP) is to create a project management methodology to be able to standardize, structure, and organize work methods for the project management process in the Academic Hospital to successfully guide and execute construction projects

Description of Product or Service to be generated by the Project – Project final deliverables

The Final Graduation Project (FGP) will provide an extensive project Management methodology that will serve as a framework of guidelines in the project management process to increase the project quality that will lead to project success. This plan will consist of all the necessary documents that are needed in the project management process. The Project Documents include a project management plan, project charter, statement of work, contracts, requirements documentation, stakeholder register, change control register, activity list, quality metrics, risk register, issue log.

Assumptions

- ✓ It is assumed that all required information for the execution of the FGP is directly available.
- ✓ It is assumed that there will be staff available to provide the needed information.
- ✓ It is assumed that the FGP will be completed in (4) four months.
- ✓ It is assumed that the staff will be honest and transparent in their information.
- ✓ It is assumed that the student will be in good health to complete the FGP in the specific time frame.
- ✓ It is assumed that the organization will implement the developed methodology within the organization structure.
- ✓ It is assumed that there will be proper support for the student available by the university.

Constraints

Time: the balance between work, the daily activity, and the pre-established time frame.

Preliminary risks

- ✓ If the project managers are not willing to participate in the study it may affect the scope of the FGP.
- ✓ If the student is late to submit the assignments, it may affect the student's grade.

Budget

The budget for this FGP is \$ 0.00. There are no costs for the activities in the time frame.

Milestones and dates

Milestones	Start date	End date
Final Graduation Project Start	October 26 th , 2020	October 26 th , 2020
Graduation Seminar	October 26 th , 2020	November 29 th , 2020
Submission of the Project charter	October 26 th , 2020	November 1 st , 2020
Submission of the WBS	October 26 th , 2020	November 1 st , 2020
The introduction Chapter	November 2 nd , 2020	November 08 th , 2020
Submission of the FGP Schedule	November 2 nd , 2020	November 08 th , 2020
The theoretical framework	November 09 th , 2020	November 15 th , 2020
The methodological framework	November 16 th , 2020	November 22 th , 2020
The Abstract / Executive summary	November 23 th , 2020	November 29 th , 2020
Bibliography, Indexes	November 23 th , 2020	November 29 th , 2020
Signed charter	November 23 th , 2020	November 29 th , 2020
Tutor Assignment	January 25 th , 2021	January 25 th , 2021
Tutor Approval	March 16 th , 2021	March 16 th , 2021
Reviewers assignment	April 7 th , 2021	April 17 th , 2021
Reviewers Approval	April 25 th , 2021	April 30 th , 2021
Presentation to the board of Examiner	May 1 st , 2021	May 10 th , 2021
FGP grade	May 11 th , 2021	May 11 th , 2021

Relevant historical information

The Academic Hospital Paramaribo (Dutch: Academisch Ziekenhuis Paramaribo or AZP) is the largest hospital in Paramaribo, Suriname. With 510 beds. The hospital was opened on 9 March 1966 as Centraal Ziekenhuis (Central Hospital) but changed its name in 1969 to Academic Hospital when the medical faculty of the Anton de Kom University of Suriname was founded.

The hospital is up for renovation. Due to the financial situation in the country and within the hospital, the hospital is unable to undergo a renovation at once. Parts of the hospital are constantly being renovated and/or replaced due to overdue maintenance.

The construction projects have for a long time suffered from bad project performance and due to this, an evaluation was conducted by the department of property management to identify the reasons for not being able to deliver projects successfully.

The evaluation showed weaknesses and problems in project management in general. The lack of structure and procedure is the main problem in the project management process which often causes unnecessary delay in projects. Sometimes the cause is also finance or too many stakeholders in the process.

The lack of a structured way of working with projects also led to project managers feeling stressed and pressured in a situation. On the other hand, every project has another project manager with its way of management. Due to this, every project manager reinvent the wheel every time a new project started

Stakeholders

Direct stakeholders:

- ✓ Mirelva Dundas- Seymor (the student)
- ✓ The Global school of Project Management- Universidad para la Cooperacion Internacional
- ✓ The Management Board of the Academic Hospital
- ✓ The project Managers within the Academic hospital
- ✓ Tutors and Reviewers
- ✓ Board of examiners

Indirect stakeholders:

- ✓ The family of the student.
- ✓ The colleague of the student.
- ✓ Classmates

Project Manager: Mirelva Dundas- Seymor

Signature:



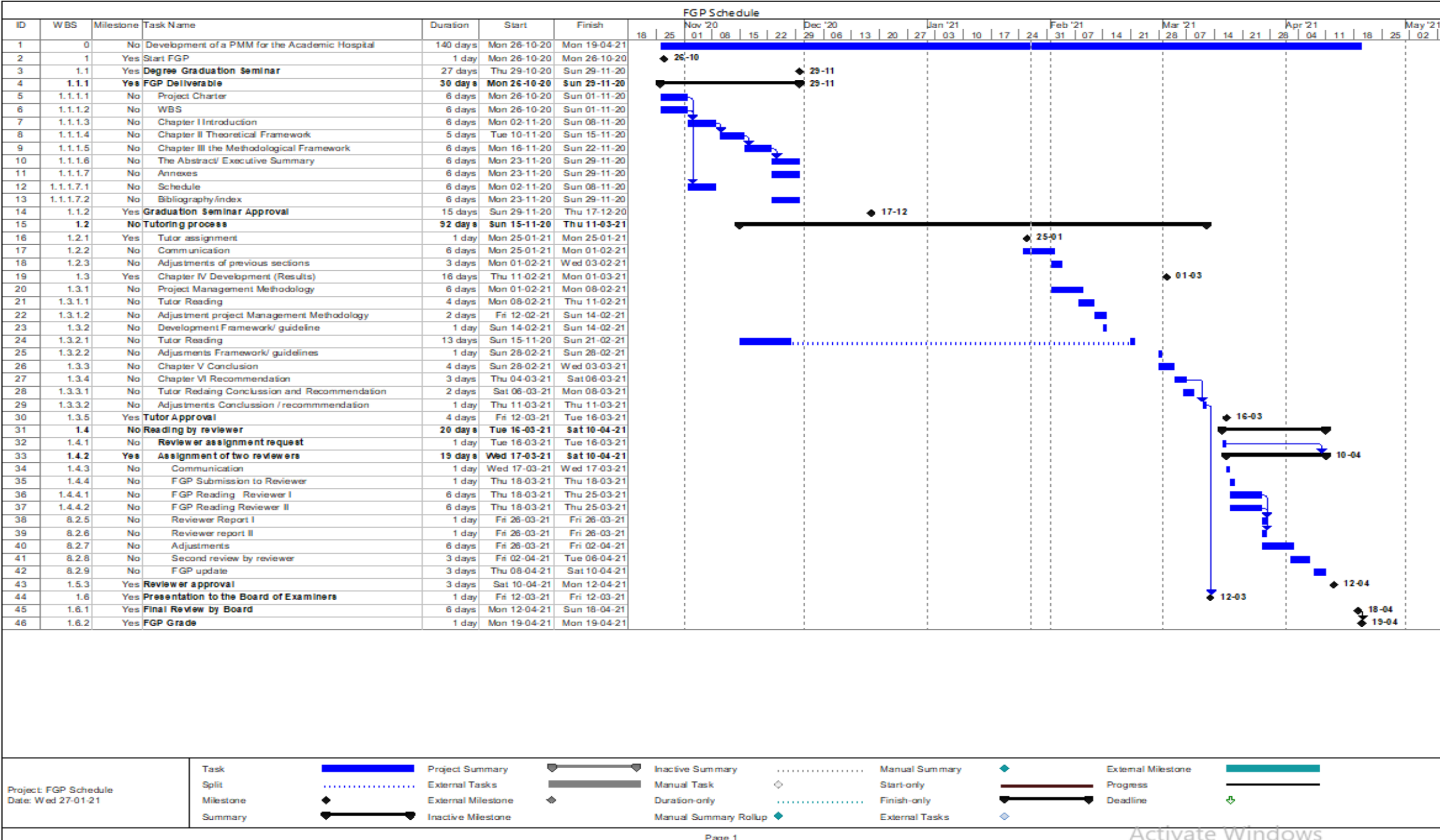
Authorized by: Mr. Carlo Brenes

Signature:

Appendix 2: FGP WBS

ID#	Activity
1	Final Graduation Project
1.1	Graduation Seminar
1.1.1	FGP deliverable
1.1.1.1	Project Charter
1.1.1.2	WBS
1.1.1.3	Chapter I Introduction
1.1.1.4	Chapter II Theoretical Framework
1.1.1.5	Chapter III Methodological Framework
1.1.1.6	The Abstract / Executive summary
1.1.1.7	Annexes
1.1.1.7	Bibliography
1.1.1.8	Schedule
1.1.2	Graduation Seminar approval
1.2	Tutoring process
1.2.1	Tutor assignment
1.2.2	Communication
1.2.3	Adjustment of previous chapters (if needed)
1.3	Development
1.3.1	Project Management Methodology
1.3.1.1	Tutor reading
1.3.1.2	Adjustments project management methodology
1.3.2	Development framework/ guidelines
1.3.2.1	Tutor reading
1.3.2.2	Adjustment framework/ guidelines
1.3.3	Chapter V Conclusions
1.3.4	Chapter VI recommendation
1.3.4.1	Submitting conclusion + recommendation
1.3.4.2	Adjustment conclusion + recommendation
1.3.5	Tutor approval
1.4	Reading by Reviewers
1.4.1	Reviewers assignment request
1.4.2	Assignment of two reviewers
1.4.3	Communication
1.4.4	FGP submission to reviewers
1.4.4.1	Reviewer I reading
1.4.4.2	Reviewer II reading
1.4.4.3	Reviewer I report
1.4.4.4	Reviewer II report
1.5	Adjustments
1.5.1	FGP update
1.5.2	Second review by reviewers
1.5.3	Reviewers approval
1.6	Presentation to the board of examiners
1.6.1	Final review by the board
1.6.2	FGP Grade

Appendix 3: FGP Schedule



Appendix 4: Results Survey

Result Maturity Assessment

Project integration management		Mark 'X in a circle if you agree
1	Are the projects executed professionally within the planned time and cost?	<input type="radio"/> Yes <input checked="" type="radio"/> No – In many cases unforeseen activities lead to additional cost and time. E.g approval issues <input type="radio"/> Not sure /Not applicable <input type="radio"/> Other, describe
2	Is a project charter used at the beginning of the projects	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not sure /Not applicable <input checked="" type="radio"/> Other, describe. -project information is been capture and signed but not all elements of a project charter are mentioned in the document.
3	Do the overall change controls manage actual changes when they occur?	<input type="radio"/> Yes <input checked="" type="radio"/> No- when the changes occur then the project team will see how to manage it <input type="radio"/> Not sure /Not applicable <input type="radio"/> If yes, How?
4	Who has the responsibility in project planning, execution, and control? And by whom are these processes approved?	Describe: For the small project For the large are most of the time outsourcing. The Engineering firm makes the overall planning to indicate the duration of the project. The contractor makes a detailed schedule in which the various project phases and or components are indicated. The engineering firm is the one that monitors this
5	Are all the project management processes applied to all project	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not sure /Not applicable <input type="radio"/> Other
Scope management		
1	Which scope management process(es) are applied to the projects within the AZP?	<input checked="" type="checkbox"/> Collect requirements: <input checked="" type="checkbox"/> Define scope - meeting minutes <input checked="" type="checkbox"/> WBS: deliverable-oriented breakdown of a project <input checked="" type="checkbox"/> Verify scope -reviewing the deliverables with the customer <input checked="" type="checkbox"/> Control scope- monitoring the status of the project
2	Are there standard scope	<input type="radio"/> Yes;

	management documents for the end-users?	<p>X No- there is no standard scope management document</p> <ul style="list-style-type: none"> ○ Not sure ○ If yes, which documents
3	How is the scope of the project determined?	<p>X Direction from management</p> <p>X Developed from functional targets</p> <p>X Direction from customers?</p> <ul style="list-style-type: none"> ○ Other, if so describe __ <p>It depends. In a small project, it is directed by the management and in a large project, it is all the three circled answers</p>
4	How is the scope of a project Controlled and Changed?	<p>X from management?</p> <p>X Direction from End-User?</p> <ul style="list-style-type: none"> ○ Change notice form project office ○ Other, if so describe _____
Time management		
	What documents are used for time management?	<ul style="list-style-type: none"> ○ Milestone plans X Project plans – Giant Charts ○ System plans – ○ Master schedule plan ○ Other, if so describe
	What tools/ techniques are used for the time management process?	<p>X Project management software MS Project</p> <p>X MS Excel Most of the time</p> <ul style="list-style-type: none"> ○ List of tasks ○ Other, if so describe
	Is there a maintained baseline schedule for each project?	<ul style="list-style-type: none"> ○ Yes X No ○ Not sure ○ Other, describe
	Is the planned schedule digital available for all project teams?	<p>X Yes – By email and if needed in hard Copy</p> <ul style="list-style-type: none"> ○ No ○ Not sure ○ If yes, How?
Cost management		
	What systems/tools are currently used to manage project costs?	<ul style="list-style-type: none"> ○ Project management software – (which one) X MS Excel – in all projects ○ Earned Value Management ○ Other, if so describe

	Is there a standard method practiced for resource planning, cost estimation, and budgeting?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not sure
	How are project costs assigned?	<input checked="" type="radio"/> By project <input type="radio"/> By tasks and time <input type="radio"/> By department <input type="radio"/> WBS <input type="radio"/> Other, if so describe
	What method is used for tracking costs?	Describe: In Excel: tracking the approved budget and the more and less work or Estimate percentage of the project deliverables
	Is there a built system for cost tracking?	Describe No build systems
	Are scope changes and cost estimates approved by management?	<input checked="" type="radio"/> Yes - <input type="radio"/> No <input type="radio"/> Not sure/Not applicable <input type="radio"/> If yes. How? A memo is presented to the management team for approval
Quality management		
	Are there software-based systems/tools to manage the quality of the projects?	<input type="radio"/> Quality management and control tools <input type="radio"/> Seven Basic Quality Tools <input type="radio"/> Quality metrics and audits <input type="radio"/> Process analysis <input type="radio"/> Not applicable <input checked="" type="radio"/> Involvement End –User-most of the time the end-user is benchmarking with another hospital about specific Quality.
	Is AZP ISO certified?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not sure <input checked="" type="radio"/> Some departments. But not the departments busy with projects
	Are there quality methods and systems established for each project?	<input type="radio"/> Yes <input checked="" type="radio"/> No, they have to meet internal and external criteria <input type="radio"/> Not sure
	Has AZP established and approved a quality assurance process?	<input type="radio"/> Yes <input checked="" type="radio"/> No. they have to meet internal and external criteria <input type="radio"/> Not sure <input type="radio"/> If yes, which one

	Are there performance/quality standards used to identify and measure the quality of the project's products?	<input type="radio"/> Yes <input checked="" type="radio"/> No- only Large projects <input type="radio"/> Not sure <input type="radio"/> If yes which one
HR management		
	Our project management practices and processes consistent between departments and functional departments?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not sure
	What tools are currently used to plan HR management?	<input checked="" type="radio"/> Organization charts and position descriptions <input type="radio"/> Networking <input type="radio"/> Organizational theory <input checked="" type="radio"/> Expert judgment <input type="radio"/> Meetings <input type="radio"/> Other, if so describe
	Are there any project management Training or courses identified and provided for the project team?	<input type="radio"/> Yes <input type="radio"/> PMI training <input checked="" type="radio"/> No <input type="radio"/> Not sure
	Are there defined roles and responsibilities for all project members?	<input checked="" type="radio"/> Yes - (how?) base on expertise <input type="radio"/> No <input type="radio"/> Not sure/Not applicable <input type="radio"/> Other, if so describe
	Is there a defined skill level for the project managers?	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not sure/Not applicable not all the project manager <input type="radio"/> Other describe
	Does everybody involved in the project have the required skills and knowledge	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not sure <input checked="" type="radio"/> Other, describe Most of the people. Especially in a large project Some Project managers are hired based on their years of experience and not the required skills and project knowledge areas. None of the Project Managers has an MPM educational level.
Communications management		
1	What tools are used to plan Communications?	<input type="radio"/> Communication requirements analysis <input type="radio"/> Communication models and methods

		<input checked="" type="checkbox"/> Meetings – Primary Tool <input checked="" type="checkbox"/> Weekly Status Reports- Sometimes <input type="checkbox"/> A Project Board <input type="checkbox"/> Other, if so describe <input type="checkbox"/> _____
2	Are lessons learned shared with project members by the Project Manager?	<input checked="" type="checkbox"/> Yes (how?) in the meeting but they are not captured <input type="checkbox"/> No <input type="checkbox"/> Not sure /Not applicable
3	Are lessons learned and previous experiences well organized, documented, and utilized for other projects?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other, describe
Risk management		
1	When is project risk analyzed in the projects	<input type="checkbox"/> Before all field exploration <input type="checkbox"/> After every project phase <input type="checkbox"/> After accomplishing every key event <input type="checkbox"/> After reaching every milestone <input type="checkbox"/> After every progress evaluations <input type="checkbox"/> During the whole projects <input type="checkbox"/> Other, if so describe <input checked="" type="checkbox"/> In the planning phase
2	Are the areas of risk been identified and mitigated for each project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not sure/Not applicable <input type="checkbox"/> Other, if so describe
3	is there a definitive process to measure deliverables?	<input type="checkbox"/> Yes (How?) <input checked="" type="checkbox"/> No <input type="checkbox"/> Not sure /Not applicable <input type="checkbox"/> Other, if so describe
4	What methods are used to manage and control risks?	<input checked="" type="checkbox"/> Brainstorm with team and expert <input type="checkbox"/> Risk assessment template <input type="checkbox"/> A risk register <input type="checkbox"/> Risk quality data Assessment <input type="checkbox"/> Scenario analysis <input type="checkbox"/> Gantt charts <input type="checkbox"/> SWOT analysis <input type="checkbox"/> Other, if so describe
	Is there a standard risk management document	<input type="checkbox"/> Yes (which one?) <input checked="" type="checkbox"/> No

		<ul style="list-style-type: none"> ○ Not sure /Not applicable ○ Other, if so describe
	Is the risk analysis done for all Project?	<ul style="list-style-type: none"> ○ Yes (when?) X No
Procurement management		
1	Is there a formal Procedure for Procurement works?	<ul style="list-style-type: none"> X Yes. <i>It is not a formal template but the same template is used every time. For the large projects, the public procurements rule or rule and guideline from the financiers are used</i> ○ No ○ Not sure /Not applicable
2	Does the procurement management process apply to all projects?	<ul style="list-style-type: none"> X Yes: large project, <i>Partly</i> ○ Yes - all projects ○ Yes: small projects ○ No ○ Not sure /Not applicable ○ Other, if so describe _____
3	Does the procurement department take lead on planning, requested items?	<ul style="list-style-type: none"> ○ Yes, (How?) X No. <i>most of the time the project manager together with the end-users</i> ○ Not sure /Not applicable
Stakeholder management		
1	is a stakeholder management process needed to determine the people, groups, or organizations that may affect or be affected by the project?	<ul style="list-style-type: none"> ○ Yes X No. <i>sometimes they are appointed by the management team are the requested department</i> ○ Not sure /Not applicable
2	Which tools are used to identify Stakeholders in the project?	<ul style="list-style-type: none"> ○ Stakeholder analysis X Expert judgment X Meetings ○ Stakeholder matrix ○ Other, if so describe
3	Are all relevant information available to identified stakeholders?	<ul style="list-style-type: none"> X Yes (how?) <i>if necessary they receive project updates</i> ○ No ○ Not sure /Not applicable

Appendix 5: Template Project Proposal

Project Proposal

Title: Elementary renovation of the ER



Date: March 8th, 2021

Project ID# AZP_C_002

Project duration: 9 months

Estimated Budget: US\$ 527.295

Introduction	<i>Information about the Academic hospital, such as main activities, services, and the role in the health sector Information about the specific department.</i>
Project description	<ul style="list-style-type: none"> ▪ <i>Current situation</i> ▪ <i>Expected Situation</i> ▪ <i>Details how the project will be implemented</i>
Statement of work	<ul style="list-style-type: none"> ▪ <i>Why is it necessary?</i> ▪ <i>Services generated by the project</i>
Project Objectives	<i>Project Plans to achieve</i>
Beneficiaries	<i>Who will benefit and how will they benefit?</i>
Sustainability	<i>How will the project survive in the long term?</i>

Cost estimate

Example

Project phase	Works	Cost in US\$
Triage & Fast track	Civil works, furniture, ICT	150.305
Examination/ treatment rooms	Civil works, medical equipment, furniture	70.000
Cardiac emergency unit	Civil works, medical equipment, ICT	252.990
Back office	Civil works	50.000
Total		527.295

Submitted by

Department	Project Management Office
Name	

Title	
Date	
Signature	

Approval

This project is **approved / not approved** by the project board
 Comments project board

.....

.....

.....

.....

This project will be managed by

Name	
Title	

Paramaribo,20.....

Authorized By

Technical director AZP

Name _____

Signature _____

Health, Safety, Environment, and Quality

Name _____

Signature _____

Engineer

Name _____

Signature _____

Head department

Name _____

Signature _____

Appendix 6: Template Project Charter

Project Charter				
Date				
Department				
Project Name				
Project ID#				
Starting date of the Project		Completion date of the Project		
Relevant historical information of the department				
Project description (<i>current situation, expected situation, and activities to be undertaken</i>)				
Project Objectives (general and specific)				
Description of the Service to be generated by the Project (<i>Project final deliverables</i>)				
Who will benefit from the project and how will they benefit?				
Project Assumptions				
Project Constraints				
Preliminary Risk				
Risk		How will the risk be managed		
Health and Safety Risk				
Are there any potential health and safety risks to workers or others during the <i>implementation phase</i> of this project? Circle Yes / No				
Circle yes / NO – if Yes complete the following table.				
What tasks will be done to complete this project?		What tasks could cause an injury?	What will be done so that the injury does not occur?	
Will the outcome of this project be used by the general public?				
What actions must be completed to ensure the safety of users or the general public?		Who will ensure that the correct standards are met or that the correct permits or endorsements have been obtained? i.e. engineer, site manager, project coordinator, local authority, etc.		
Lessons learned from Similar Project				
Description		Impact	Recommendation	
Implementation Plan (Show key tasks)				
Start date		End date	Task	Input required
Project Budget Summary				
Activity	Unit	Price	Fund contributions	Total cost
Stakeholders				
Name		Role		
Project Manager		Authorized by:		

Appendix 7: Template Role and Responsibility Matrix

Role & responsibility Matrix

Project Title: the construction of the ICU waiting room



Date: March 8th, 2021

Project ID# AZP_C_003

	Project Initiations	Project sponsor	Project Manager	Engineering consultant	Technical Architect	Project board
	Step 1 Development					
	Activity 1 Develop Project proposal	C	A/R	C	I	I
	Activity 2	A	I	R	C	I
	Activity 3	A	I	R	C	I
	Activity 4	C	A	I	R	I
	Step 2 Directing					
	Activity 1					
	Activity 2					

The RACI model is a straightforward tool used for identifying roles and responsibilities and avoiding confusion over those roles and responsibilities during a project. The acronym RACI stands for:

- ✓ Responsible: The person who does the work to achieve the task. They have responsibility for getting the work done or decisions made. As a rule, this is one person; examples might be a business analyst, application developer, or technical architect.
- ✓ Accountable: The person who is accountable for the correct and thorough completion of the task. This must be one person and is often the project executive or project sponsor. This is the role that responsible is accountable to and approves their work.
- ✓ Consulted: The people who provide information for the project and with whom there is two-way communication. This is usually several people, often subject matter experts.
- ✓ Informed: The people kept informed of progress and with whom there is one-way communication. These are people that are affected by the outcome of the tasks, so need to be kept up-to-date.

Appendix 8: Template Statement of work

Statement of Work (SOW)

Project Title: Name



Date: March 8th, 2021

Project ID# AZP_C_003

Duration: 8 months

Appointed Project Manager			
Team members	Name Member	Role	Organization
External partner	Name	Role	Organization
Overseeing committee :			
Introduction/ Background information of the project			
Scope			
Objectives			
Objective # 1			
Objective # 2			
Deliverables			
Activities		Due date	
Activity # 1		3/11/21	
Activity # 2		4/12/21	
Cost Estimates			
Authorized by the project board			

Appendix 9: Template Issue log

Issue Log

Project Title: the construction of the ICU waiting room



Date: March 8th, 2021

Project ID# AZP_C_003

Project Manager: J. Valies

Project Duration: 3 months

This is a unique identifier for each issue.

#	Issue	Description	Reported by	Assign to	status	Priority	Date reported	Date resolved	comment	resolution
1	Scope	End-user is pushing for activities that are out of the scop	J.V.	M.D	Active	High	11/2/21	20/02 /21	M.D is working with J.V	
						Medium				
						Low				

Record the current status of each issue, for example:

- ✓ Open: The issue is currently open but has not yet been addressed.
- ✓ Work in progress/ Active: The issue is being actively worked on to develop a resolution.

- ✓ Closed: The issue is no longer considered an active project threat and can be closed with or without resolution.

Issue Severity	Description
Critical	The issue will stop project progress.
High	The issue will likely impact the Budget, Schedule, or scope.
Medium	The issue impacts the project but could be mitigated to avoid an impact on the budget, schedule, or scope.
Low	The issue is low impact and/ or low effort to resolve.



Appendix 10: Template Lessons Learned

Lessons Learned Log

Project Title: the construction of the ICU waiting room

Date: March 8th, 2021

Project ID# AZP_C_003

Project Manager: J. Valies

Project Duration: 3 months

ID	Date raised	Activiteit (What happened)	RAG Neg/ pos	Early warning signs?	Recommendation	Actions	Owner	WBS ID	Status
	<i>Mm/dd/yy</i>	<i>[Give a clear detailed description of what happened and the impact. Lessons can be positive as well as negative].</i>	<i>Neg/ Pos</i>	<i>[Note any warning signs that could be picked up in the future]</i>	<i>[Recommendation for improvement or to remove the issue for future projects].</i>	<i>[Actions that will be taken to implement the lesson learned]</i>	<i>[Person who will take the action(s)]</i>	<i>[Link to WBS ID if applicable]</i>	<i>[Open / In progress / Closed]</i>
			NEg						
			Pos						

Appendix 11: Progress Report

PROJECT STATUS REPORT



Date: March 8th, 2021

Project ID# AZP_C_003

Project Summary

REPORT DATE	PROJECT NAME	PREPARED BY
Date	Project	Name

STATUS SUMMARY

What is the status of the project

PROJECT OVERVIEW

TASK	% DONE	DUE DATE	DRIVER	NOTES

BUDGET OVERVIEW

CATEGORY	SPENT	% OF TOTAL	ON TRACK?	NOTES

RISK AND ISSUE HISTORY

ISSUE	ASSIGNED TO	DATE

CONCLUSIONS/RECOMMENDATIONS

Appendix 12: Template Stakeholders Analysis

Stakeholders Management plan

Project Title: the construction of the ICU waiting room

Date: March 8th, 2021

Project ID# AZP_C_003

Stakeholders Identification

Project Manager	Stakeholder 1
	Stakeholder 2
	Stakeholder 3
	Stakeholder 4

Stakeholder register

Name	Organisation	Role	Contact Details
J. Valies	AZP	Project Manager	Janice.valies@azp.sr
Stakeholder 2			
Stakeholder 3			
Stakeholder 4			

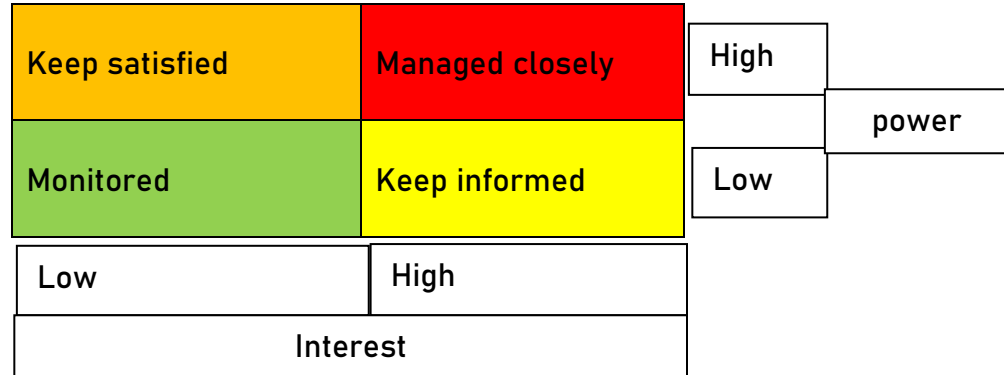
Stakeholder power/interest grid

Stakeholders	Power	Interest	Engagement
Stakeholder 1	High	Low	Keep satisfied
Stakeholder 2	Low	high	Keep informed
Stakeholder 3	Low	low	Monitored
Stakeholder 4	Hilgh	High	Manage closely

Plan stakeholders engagement

Stakeholders	Information	Owner	Frequency	Method
Stakeholder 1	Project update	PM	Weekly	mail
Stakeholders 2	Project status	PM	Monthly	Mail
Stakeholder 3			Daily	meeting
Stakeholders 4			Weekly	Mail/ hard copy

Power/Interest Grid



The power/ interest grid shows the position assign to stakeholders and the actions needed to be taken against them:

Engagement:

- **Stakeholders with high power and high interest must be managed closely.** These people must fully engage during the project and constantly be kept satisfied.
- **Stakeholders with high power and low interest must be kept satisfied.** Put enough work in with these people to keep them satisfied, but not so much that they become bored with your message.
- **Stakeholders with low power and high interest must be kept informed.** Adequately inform these people, and talk to them to ensure that no major issues are arising. People in this category can often be very helpful with the detail of your project.
- **Stakeholders with low power and low interest must be monitor.** again, monitor these people, but don't bore them with excessive communication.

- ✓ Stakeholder: The individual or group that is communicated to.
- ✓ Owner: The one who is responsible for the communication.
- ✓ Information: That what needs to be communicated to the stakeholder.
- ✓ Communication method and technology: The way how the communication. will take place: Oral/written I Via electronic media or printed paper.
- ✓ Frequency: How often the communication will take place.

Appendix 13 Project Management Plan



Project Management plan

Example project

Project Title: the construction of the ICU waiting room

Project ID# AZP_C_003

Date: March 8th, 2021

Author: *Name*

Version: *.....*

Project name	the construction of the ICU waiting room
Project ID#	AZP_C_003
Project Manager	
Project sponsor	
Project Team	
Project Duration	3 months

Background information AZP

Relevant historical information about the specific department within the Academic hospital

Scope Statement

Cope statements should be SMART:

- Specific. The more specific the better.
- Measurable. If you can't measure it, you have no way of knowing if it was achieved. Sometimes the best criteria are qualitative, but use quantitative descriptions whenever possible.
- Achievable. It's surprisingly easy to commit to something you don't have the expertise to complete.
- Relevant. The scope should focus on completing the goals of the client/owner, and avoid tasks that do not add value.
- Time-Bound. A project is by definition temporary and thus has a time limit. I would consider this optional but it certainly doesn't matter in a scope statement.

Example:

This project involves building a waiting area for at least 70 visitors for the intensive Care Unit (ICU). This waiting area will consist of a full steel framework surrounded by a cement board. the waiting area with a surface of 160m² will be about 1.25 m high with cement board and wooden shovels to the top. This in order not to impede the ventilation. The waiting area will be located as close to the ICU. This waiting area will have a toilet group for visitors to use. Space will be split into smaller guard booths to ensure the privacy of each family.

Critical Success Factors

Items that can define project success are:

- Deadlines (time)
- Budget (cost)
- Quality standards
- End-user benefits
- Minimal change orders
- Low rate of product rejections
- Employee satisfaction

Example:

- ✓ The project will be completed by August 31
- ✓ The project team will obtain new skills in the area of database management which the larger organization will benefit from

Deliverables

The results that the project is commissioned to produce.

Example:

- ✓ A new waiting area
- ✓ Better customer service
- ✓ a consultation room for the specialist with the family

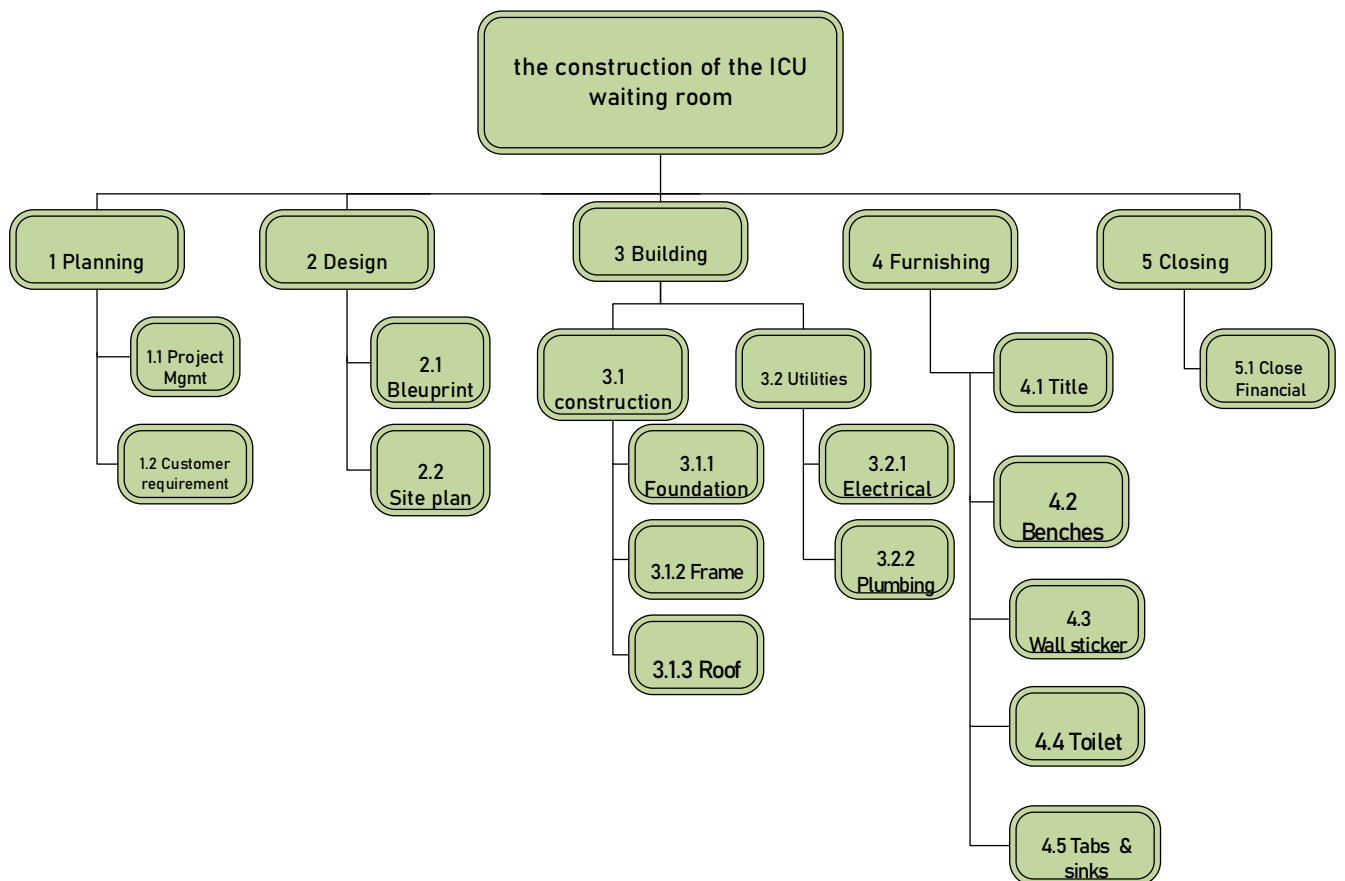
Work Breakdown Structure

A logical subdivision of the project into tasks. Management of the project is then done on a task-by-task basis.

WBS ID	Task
1	Planning
1.1	Project Management
1.2	Customer requirements
2	Design
2.1	Bleu prints
2.2	Site plan
3	Building
3.1	Construction
3.1.1	Foundation
3.1.2	Frame
3.1.3	Roof

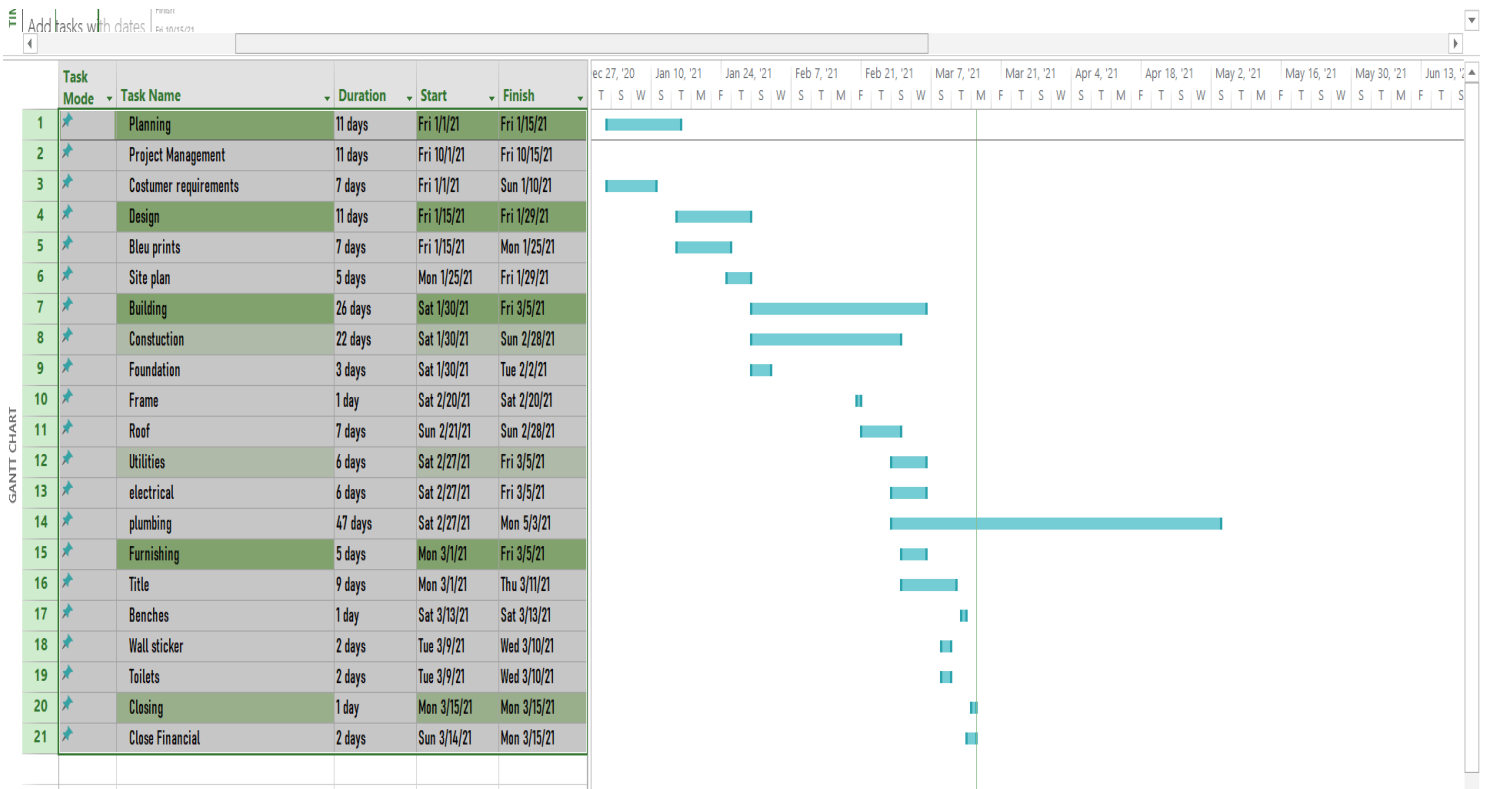
3.2	Utilities
3.2.1	electrical
3.2.2	plumbing
4	Furnishing
4.1	Title
4.2	Benches
4.3	Wall sticker
4.4	Toilets
5	Closing
5.1	Close Financial

WBS



Schedule

WBS ID	Task	Dependencies	Start date	End date	Duration
1	Planning		1-1-21	15-1-21	14
1.1	Project Management	1.2	10-1-21	15-1-21	5
1.2	Customer requirements		1-1-21	10-1-21	9
2	Design	1	15-1-21	29-1-21	14
2.1	Bleu prints	1.1, 1.2	15-1-21	25-1-21	10
2.2	Site plan	2.1	25-1-21	29-1-21	4
3	Building	2.2	30-1-21	5-3-21	34
3.1	Constuction	2.1, 2.2	30-1-21	28-2-21	29
3.1.1	Foundation	2.1	30-1-21	2-2-21	3
3.1.2	Frame	3.1.1	3-2-21	20-2-21	17
3.1.3	Roof	3.1.2	21-2-21	28-2-21	7
3.2	Utilities	3.1.3	27-2-21	5-3-21	6
3.2.1	electrical	3.1.3	27-2-21	5-3-21	6
3.2.2	plumbing	3.1.3	27-2-21	5-3-21	6
4	Furnishing	3.2.2	1-3-21	13-3-21	12
4.1	Title	3.1.3	1-3-21	11-3-21	10
4.2	Benches	4.3	13-3-21	13-3-21	1
4.3	Wall sticker	4.1	9-3-21	10-3-21	1
4.4	Toilets	4.1	9-3-21	10-3-21	1
5	Closing	4	14-3-21	15-3-21	1
5.1	Close Financial	4	14-3-21	15-3-21	1



Budget

Just like the schedule, for small projects the budget can be added to the WBS:

WBS ID	Task	Dependencies	Start date	End date	Budget USD
1	Planning		1-1-21	15-1-21	
1.1	Project Management	1.2	10-1-21	15-1-21	00
1.2	Customer requirements		1-1-21	10-1-21	00
2	Design	1	15-1-21	29-1-21	
2.1	Bleu prints	1.1, 1.2	15-1-21	25-1-21	1200
2.2	Site plan	2.1	25-1-21	29-1-21	500
3	Building	2.2	30-1-21	5-3-21	
3.1	Constuction	2.1, 2.2	30-1-21	28-2-21	
3.1.1	Foundation	2.1	30-1-21	2-2-21	1000
3.1.2	Frame	3.1.1	3-2-21	20-2-21	5000
3.1.3	Roof	3.1.2	21-2-21	28-2-21	7000
3.2	Utilities	3.1.3	27-2-21	5-3-21	
3.2.1	electrical	3.1.3	27-2-21	5-3-21	1000
3.2.2	plumbing	3.1.3	27-2-21	5-3-21	1100
4	Furnishing	3.2.2	1-3-21	13-3-21	
4.1	Title	3.1.3	1-3-21	11-3-21	4000
4.2	Benches	4.3	13-3-21	13-3-21	2500
4.3	Wall sticker	4.1	9-3-21	10-3-21	750
4.4	Toilets	4.1	9-3-21	10-3-21	600
5	Closing	4	14-3-21	15-3-21	
5.1	Close Financial	4	14-3-21	15-3-21	00
					24.650

Quality

Quality standards should be itemized and listed.

Several aspects to quality management:

- Determining quality standards
- Developing a strategy to meet the standards (quality assurance)
- Measuring quality (quality control)

Human Resources Plan

The human resources portion of the project management should contain the following items:

- *Resource Requirements.* A list of project team positions, job descriptions, and so forth.

- *Project Team Acquisition.* How the project team will be acquired. Lists of positions that are already occupied by the larger organization, how much time each person will devote to the project, where the project team will come from, and so forth.
- *Training and Development.* How you will ensure that the project team can successfully carry out the project.
- *Management.* Motivational activities, performance assessments, staff reassignment procedures, and any other item that is relevant to the successful management of the project team.

Stakeholder List

Stakeholder power/interest grid

Stakeholders	Power	Interest	
Stakeholder 1	High	Low	Keep satisfied
Stakeholder 2	Low	high	Keep informed
Stakeholder 3	Low	low	Monitored
Stakeholder 4	Hilgh	High	Manage closely

Communication

The project management plan should contain a list of formal communication that are core to the project. These include things like project updates, investor circulars, progress reports, and so forth.

Recipient(s)	Information	Frequency	Medium	Contents
All stakeholders	Progress Report	Monthly (last day of the month)	pdf via email	CV and SV, discussion of last months tasks
Project investors	Investor Circular	Monthly (first day of the month)	email	Cost Variance (CV), discussion of cost status

Risk Register

A proper way to manage risk is through the creation of a risk register. simply means a listing of the most important risks to the successful completion of the project. Any item that can negatively influence the success of the project is considered a risk.

A risk is defined by two factors:

- Probability
- Impact

The risk register contains the following fields:

1. **Description of risk.** The final list of risks is determined via brainstorming, subject matter experts, analysis of previous projects, and so forth. A maximum of 20 risks should be used as a guide, but usually, you will want to quit at about 10 because they get pretty remote.
2. **Probability.** A scale of 1-10, A-E, or similar will classify the risk sufficiently.
3. **Impact.** A scale of 1-10, A-E, or similar will classify the risk sufficiently.
4. **Priority.** The Probability is multiplied by the Impact to determine the overall priority. But re-classifying them into a 1-10 scale usually makes sense. The list is then sorted by priority.
5. **Triggers.** The actions or events that define the occurrence of the risk are identified. For example, if you're building a fence and the risk is that it starts to rain, how much rain makes you have to stop? What defines the risk as having occurred?
6. **Response plan.** This is where you develop a plan to deal with the risk. What are the action steps that will be followed when the trigger is deemed to have occurred? Who will perform those actions, and who are all the stakeholders that need to be notified?

Risk	Probability (1-10)	Impact (1-10)	Priority (1-10)	Trigger	Response plan
Rain delay	7	4	7	Small drizzle, too muddy to work	Wait for the rain to stop
People are redeployed off the project	8	7	9	Managers call employees back	Wait for response

Procurement Plan

The project management plan the procurement plan should identify the following things:

- What outside products and services are required.
- How they will be procured.
- How their progress and quality will be monitored.

The procurement process should include:

1. **Develop a Statement of Work (SOW).** The SOW has many synonyms, like Terms of Reference, scope statement, Request for Proposal (RFP), and others. But it is simply a statement of what work the outside contractor must perform. Usually, the technical details are kept separate from the contractual stuff (bidding procedures, insurance requirements, etc.) because an engineer will write the technical part and a lawyer will write the contractual part. Because of this the terminology has also become separated. The technical details are called the SOW or the Terms of Reference, and the contractual stuff is called Request for Proposal, Request for Quotation, Invitation to Tender, and the like.
2. **Perform the Procurement.** Once the Request for Proposal (RFP), which includes the Statement of Work (SOW) is finalized, it is sent to the bidders to perform the procurement. Once the bids are in, a winning bidder must be chosen. Always make sure you write into the tender and/or SOW that you are free to pick any bidder rather than just the lowest because if you don't you will be forced to pick the lowest (in most jurisdictions).
3. **Progress Payments.** Normally contractors are paid based on the amount of work completed per month (or some other period). There might be some documentation required but the invoice is sent, the progress is verified and the bills get paid.

Appendix 14: Minutes of Meet

Minutes of Meeting

Date: March 8th, 2021

Project ID# AZP_C_003

Meeting Details

Date of Meeting:	
Time:	
Team Members Present:	
Project Manager	
Absent Team Members:	
Guests present:	

Agenda Details

Agenda
Agenda Topic # 1
Agenda topic # 2

Minutes Previous Meeting

- ✓ Hospital TD indicates that pumping water out of the basement will be a problem.
- ✓ Basement inspection to be done after the weekend.
- ✓ The contractor states that if the elevator is set on hold his works will be behind schedule.

Action plan

ACTION	ASSIGNED TO	DUE DATE
Action #1	Mekel Benn	01/01/2021
Action #2	Sam Sohan	02/01/2021

Pending Actions

ACTION	ASSIGNED TO	DUE DATE
Action #1	Derek Pinas	01/01/2021
Action #2	Gail Lila	02/01/2021

Conclusion

Signed: Paramaribo,.....20.....

Project Manager:_____

Appendix15: Closure Report



Closure Report

Project Title: the construction of the ICU waiting room

Date: March 8th, 2021

Project ID# AZP_C_003

This document details include the input, process step, and output required for the closure of the project executed in the Academic Hospital. The project closure report is the final document produced for the project and project board to assess the success of the project, identify best practices for future projects, resolve all open issues, and formally close the project.

Project Manager	
Project Sponsor	
Project Team	
Author	

Reason for closure of the project

A brief description of why the project is being closed

*1) is it being closed because all the project deliveries and objectives have been met?
2) or is it being closed for other reasons e.g. loss of funding, a shift in strategy, or failure at a clinical trial.*

Project Final Position	Final Position	Comments
Scope	<i>What was delivered?</i>	
Cost	<i>State the final cost of the project</i> <i>If there is a variance against the original approved value, provide a reason in the comments.</i>	
Schedule	<i>What was the completion date of the project?</i> <i>How does it compare to the original baseline date?</i>	

<i>Project Budget</i>		
Planned Cost	Actual cost	Variance

Description	Comments
Risk	
<i>Has all risk, issues, actions, and dependencies in the RAID been closed</i>	
<i>Are contingency plans in place for outstanding risk</i>	
Supplied Management	
<i>Have all appropriated contractors engagements have been terminated</i>	
<i>The project has approved all supplier commitments vs the relevant contract or purchase order (include Change request)</i>	
<i>All payments have been made or accrued with responsibility for payments transferred</i>	
<i>All purchase orders are checked and closed</i>	
Project en quality Management	
<i>Has all project documentation been stored by the academic hospital and requirements</i>	<i>State the location where the documents are stored.</i>
significant occurrences during the project's implementation	How were they handled?

Appendix 16: Philological approval letter**Philological Approval Letter**April 2nd , 2021

Re: philological approval letter of the Final Graduation document written by Dundas- Seymor Mirelva Sharissa.

To whom it may concern,

I, Helen Brondenstein, hereby confirm that the Final Graduation document entitled:

***A PROJECT MANAGEMENT METHODOLOGY
FOR THE CONSTRUCTION PROJECTS WITHIN THE ACADEMIC HOSPITAL***

is accurate in the use of the English Language for a Master's degree.

The Final Graduation document is reviewed on structural, typographical, and grammatical corrections. The student has made all the corrections to the document as advised.

Yours Sincerely,



*Helen J. Brondenstein BSc
English Teacher
Speech Therapist*



diploma

De Directeur en leraren verklaren dat

(Naam) **Brondensteien Beten Josephine**
(Vogelnamen)

Geboren op **14 september 1963 te Paramaribo**

met goed gevolg het examen ter verkrijging van de

AKTE VAN HOOFDONDERWIJZER

afgesloten op **06 augustus 2004** heeft afgelegd, ten
bewijze waarvan haar dit getuigschrift is uitgereikt.

Paramaribo, **06 augustus 2004**

Namens de Lettaren


Geksamineerde

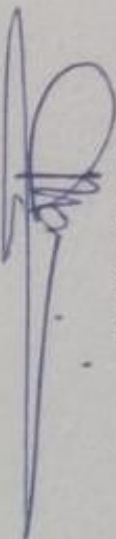


Directeur



De Minister van Onderwijs en Volksontwikkeling, gehoord de Directeur van Onderwijs, verklaart dat dit getuigschrift is uitgereikt als akte van hoofdonderwijzer, zoals bedoeld in artikel 24 van de Lager Onderwijsverordening 1960 (G.B. 1969 no. 108).

De Minister van Onderwijs en Volksontwikkeling
Namens deze,
De Directeur van Onderwijs,



AVONDOPLEIDING
VOOR DE HOOFDAKTE