Project Plan
For COBIT CONSULTANTS

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Contents

1. Work Breakdown Structure

The following section will focus on the work breakdown structure that will be used to complete the proposed project management system. The various phases of the project, as well as the tasks and activities within each of these phases, will be discussed below.

1.1 Phases

Prototyping is a software development methodology that emphasizes creating a functional, simplified version of the final product early in the development process. The goal of this methodology is to obtain valuable feedback from stakeholders, such as users or clients, and iteratively refine the design until it meets their requirements and expectations.

Phase Title	Phase Description	Phase Sequence
Requirements Gathering:	In this initial phase, the project team gathers requirements and expectations from stakeholders. This may include general ideas about the functionality, user interface, and overall system behavior.	Completed in 2022
Initial Prototype Development:	Based on the gathered requirements, the development team creates a basic, working prototype. This prototype typically focuses on the most critical features and functionalities and may have a simplified user interface. This initial prototype aims to give stakeholders an idea of what the final product might look like and how it will function.	Completed in 2022
Prototype Evaluation:	The initial prototype is presented to stakeholders for review and feedback. They evaluate the prototype based on factors like usability, functionality, and design, and provide suggestions for improvements or changes.	First Phase
Iterative Refinement:	Taking the feedback from stakeholders into account, the development team refines the prototype, making necessary changes and improvements. This process is iterative, with the prototype being continuously evaluated and refined until it meets the stakeholders' expectations and requirements.	Second Phase
Finalize Requirements:	Once the prototype is refined to the satisfaction of stakeholders, the development team finalizes the requirements and design documents. These documents will serve as a reference for the full-scale development of the final product.	Third Phase
Full-scale Development	With the finalized requirements and design in hand, the development team proceeds to build the final product. This	Fourth Phase

	may involve implementing additional features, optimizing performance, and enhancing the user interface.	
Testing and Deployment:	The final product undergoes rigorous testing, including unit, integration, system, and user acceptance testing. Once the product has passed all tests and received approval from stakeholders, it is deployed to production.	Fifth Phase

1.2 Activities

1.1.1. Requirements Gathering

Activity Title	Activity Description
Solution review	Review the existing solution and identify areas for improvement or additional functionality
New requirements identification	Gather new requirements by meeting all relevant stakeholders and owner of the solution.
New requirements analysis	Analyze and prioritize the gathered requirements
Business case creation	A business case must be created to layout the analysis of the current solution. Different methods to achieve the new requirements requested and anything relevant to performing these methods are also discussed
Feasibility study creation	A feasibility study must be created to understand how feasible each possible approach is to fully understand which solutions are worth pursuing to achieve the new requirements.

1.1.2. Initial Prototype Development

Activity Title	Activity Description
Feature priority analysis	Identify the most critical features or changes to be implemented in the prototype
Initial prototype creation	Modify the existing solution to incorporate the selected features or improvements
Prototype user preparation	Ensure the prototype has a functional user interface for stakeholder evaluation
Internal prototype testing	Conduct internal reviews and testing to validate the prototype

1.1.3. Prototype Evaluation

Activity Title	Activity Description
Stakeholders prototype evaluation	Present the prototype to stakeholders for feedback and evaluation
Gathering of stakeholder feedback	Gather input on usability, functionality, design, and any additional requirements
Proper documentation of user feedback for future use	Document stakeholder feedback for further analysis and action

1.1.4. Iterative Refinement

Activity Title	Activity Description
Stakeholder evaluation discussion and planning	Discuss feedback gathered from stakeholders, create a plan to improve on the feedback and identify and plan out new requirements requested
Prototype improvements creation	Implement additional features or improvements as needed
Prototype improvements testing	Conduct further internal testing and reviews to ensure quality and consistency
Prototyping feedback and improvement loop.	Repeat the evaluation and refinement process until stakeholder approval is achieved

1.1.5. Finalize Requirements

Activity Title	Activity Description
Final requirements documentation creation	Documentation regarding the requirements of the client will be updated to reflect the new requests received from the iterative refinement phase.
Final requirements documentation approval	The final requirements documentation will be sent to the relevant stakeholders. Any meetings needed will take place to review the final document and obtain final approval.
Documentation hand over.	The final requirements documentation will be given to the development team to aid in the full-scale development stage.

1.1.6. Full-scale development

Activity Title	Activity Description
Final solution creation	Any functionality or improvements not included within the prototyping stage will be looked at and implemented into the solution.
Best practice development	Best practices for software development will be followed to create the final solution with optimum performance and ease of use in mind.
Version control usage	An appropriate version control system will be made use of to properly allow for code review and upkeep of the solution during development.
Continuous integration	Proper automated testing and continuous integration system will be put into place to ensure problems with code is identified and dealt with efficiently.

1.1.7. Testing, deployment and maintenance

Activity Title	Activity Description
Solution testing creation	Create or update tests for the solution as necessary to properly be able to evaluate whether the solution functions as needed.
Perform solution testing	Tests created in the previous activity will now be performed, whether it be unit, integration or user acceptance testing.
Problem identification and resolution	From the tests conducted, any possible problems with the solution must be identified. These problems must then be fixed.
Documentation updates	Based on the tests performed and the resolution of any problems identified within the testing process, documentation will be updated to reflect such activities as new functionality or requirements might have been realized.
Deployment preparation	Prepare the deployment environment which will run the final solution and create a deployment plan.
Deployment execution	Execution of the deployment plan, any necessary tasks will be performed to ensure the solution runs smoothly within the deployment environment.
Final deployment verification	Ensure that the solution runs properly with all necessary functionality within the deployment environment.
End user training	Updated user documentation will be given to end users to aid in the use of the solution. Any necessary training will also be given to further ensure ease of use of the solution.
Post deployment monitoring	Monitor the functioning of the solution once deployed and being used by the end users. Any problems

	identified and additional requirements requested must then be documented.
Solution maintenance	Implement any necessary patches, bug fixes or feature improvements as observed to be necessary from the monitoring of the solution.
System upgrades or migrations	If deemed to be necessary, system upgrades or migrations will be planned for thoroughly and executed.

1.3 Tasks

Activity Title	Task Title	Task Description	Task Sequence
Solution review	Review the requirements document	Review the requirements document to understand the project goals, objectives, and functional requirements.	1
	Analyze existing solutions	Analyze existing solutions in the market to identify any features or functionality that could be useful for the project.	2
	Evaluate feasibility	Evaluate the feasibility of the proposed solution in terms of technical feasibility, resource availability, and budget constraints.	3
	Identify risks	Identify any potential risks associated with the proposed solution, such as technical risks, cost risks, or schedule risks.	4
	Evaluate usability	Evaluate the usability of the proposed solution from the end-user perspective, including its ease of use, accessibility, and user experience.	5
	Evaluate maintainability	Evaluate the maintainability of the proposed solution, including its ease of maintenance, upgradability, and sustainability.	6
	Document findings	Document the findings of the evaluation process, including any strengths, weaknesses, opportunities, and threats associated with the proposed solution.	7
	Present findings	Present the findings to the project team and stakeholders and client and obtain their feedback and approval.	8
New Requirements Identification	Review project scope	Review the project scope and objectives to ensure that the team has a clear understanding of what the project aims to achieve.	1
	Conduct stakeholder interviews	Conduct interviews with stakeholders to gather their feedback and input on the project requirements.	2
	Conduct user research	Conduct user research to gather insights into the needs and preferences of the end-users. This can include surveys,	3

		focus groups, or user testing.	
	Identify gaps	Identify any gaps in the existing requirements document and determine if there are any new requirements that need to be added to the document.	4
	Document new requirements	Document any new requirements that were identified during the New Requirements Identification process and ensure that they are clearly defined and well-documented.	5
New requirements analysis	Prioritize new requirements	Prioritize the new requirements based on their importance and relevance to the project objectives.	6
	Obtain stakeholder approval	Obtain stakeholder approval for the new requirements and ensure that they are aligned with the overall project goals and objectives.	7
	Update requirements document	Update the requirements document to include the new requirements and ensure that all stakeholders are aware of the changes.	8
	Review impact	Review the impact of the new requirements on the project schedule, budget, and resources, and make any necessary adjustments.	9
Business case creation	Conduct a feasibility study	Evaluate the feasibility of the project by assessing its technical, operational, financial, and schedule aspects. Identify potential risks, constraints, and challenges.	1
	Conduct a cost-benefit analysis	Determine the projected costs of the project, including resources, equipment, and operational expenses. Analyze the potential benefits and expected potential return on investment of the project.	2
	Define project timelines	Develop a detailed timeline for the project, including major milestones, key deliverables, and dependencies.	3
	Create a business case document	Compile all the gathered information into a comprehensive business case document. The document should include an executive summary, project description, problem statement, objectives, benefits, costs, risks, market analysis, and implementation plan.	4
	Review and validate the business case	Review the business case document with relevant stakeholders, such as project sponsors, executives, and subject matter experts. Incorporate their feedback and make any necessary revisions.	5
	Present the business case	Present the finalized business case to the decision-makers. Clearly state the value proposition, benefits, and alignment with	6

		the organization's strategic goals.	
	Obtain approval and funding	Seek approval and secure the necessary funding for the project based on the presented business case. Address any concerns or questions raised by decision-makers.	7
Feasibility study creation	Define the project scope	Clearly define the scope of the project, including its objectives, deliverables, and desired outcomes.	1
	Assess technical feasibility	Evaluate the technical feasibility of the project by assessing the availability and suitability of technology, infrastructure, and resources required for successful implementation.	2
	Assess operational feasibility	Evaluate the operational feasibility of the project by analyzing the impact on existing processes, procedures, and personnel.	3
	Assess economic feasibility	Conduct a cost-benefit analysis to determine the economic feasibility of the project. Evaluate the estimated costs, potential financial returns, and the project's overall viability in terms of budget and resources.	4
	Assess schedule feasibility	Evaluate the project's schedule feasibility by analyzing the timeframes, dependencies, and potential risks that may impact the project's timely completion.	5
	Identify potential risks and challenges	Identify and analyze potential risks, challenges, and constraints that could hinder the project's success, which might include factors such as technical complexities, market uncertainties, regulatory compliance, or resource limitations.	6
	Document findings and recommendations	Summarize the findings of the feasibility study, including the identified feasibility factors, risks, and challenges. Provide recommendations on whether to proceed with the project and any necessary mitigations.	7
	Present the feasibility study	Present the finalized feasibility study to the decision-makers and client. Clearly communicate the findings, recommendations, and potential implications.	8
	Obtain approval	Seek approval from the client based on the presented feasibility study. Address any concerns or questions raised during the review process.	9
Initial	Gather feature	Collect and document the list of potential	1

Prototype Development	requirements	features and functionalities that could be included in the prototype. This can be done through stakeholder interviews, user feedback, market research, or requirements workshops.	
	Assess feature feasibility	Evaluate the feasibility of implementing each feature within the given project constraints, such as technical limitations, budget, and time constraints.	1
	Evaluate feature impact	Analyze the potential impact of each feature on the user experience, project goals, and overall value proposition.	2
	Prioritize features	Prioritize the features based on their importance and impact by doing a cost-benefit analysis.	3
	Assign feature dependencies	Identify any dependencies between features, considering their interrelationships and dependencies on other components or functionalities.	4
	Conduct risk analysis	Assess the risks associated with implementing each feature, such as technical complexity, resource requirements, or potential delays. Evaluate the potential impact of these risks on the project.	5
	Analyze resource allocation	Consider the availability of resources (e.g., development team, budget, time) and allocate them accordingly based on the prioritized features.	6
	Document feature priority	Document the prioritized features, their rationale, and any associated dependencies or risks. Create a clear and concise feature priority list that can be communicated to the development team and stakeholders.	7
	Obtain approval	Seek approval from the appropriate stakeholders for the finalized feature priority list. Ensure that everyone is aligned and in agreement with the prioritization.	8
Initial prototype creation	Define prototype objectives	Clearly define the objectives and goals of the initial prototype. Determine what we want to achieve with the prototype and what aspects of the project you want to demonstrate.	1
	Create a prototype design plan	Develop a plan outlining the design approach for the prototype	2
	Conduct design analysis	Analyze the requirements and perform a detailed design analysis to identify the most effective and efficient solution approach. Consider factors such as technology, scalability, performance,	3

		usability, security, and integration requirements.	
	Build the prototype	Develop the initial prototype using the chosen technologies, frameworks, or development tools. Start with the core functionalities and gradually add more features based on the project scope.	4
	Test and validate the prototype	Conduct usability testing and gather feedback from target users or stakeholders. Identify any issues, usability problems, or areas for improvement. Iterate on the prototype based on the feedback received.	5
	Refine and optimize the prototype	Refine the user interface, improve the user experience, and optimize the performance of the prototype based on the feedback and testing results. Make necessary adjustments to enhance the overall quality of the prototype.	6
	Document the prototype	Document the design decisions, technical specifications, and any relevant information about the initial prototype.	7
	Conduct a prototype review	Conduct a review of the initial prototype with key stakeholders, such as project sponsors and clients. Gather their feedback, validate the prototype against the project objectives, and make any necessary refinements.	8
	Obtain approval	Seek approval from relevant stakeholders for the finalized initial prototype. Ensure that it aligns with the project requirements, objectives, and user expectations.	9
Prototype user preparation	Define stakeholder evaluation objectives	Clearly define the objectives and goals of the stakeholder evaluation. Determine what you want to achieve by involving stakeholders in the evaluation process.	1
	Prepare the prototype for evaluation	Ensure that the prototype is in a state where stakeholders can interact with it. Make sure the necessary functionalities, screens, and navigation paths are implemented and accessible for evaluation.	2
	Conduct a usability review	Review the user interface of the prototype to ensure it meets usability standards and best practices. Evaluate factors such as layout, navigation, readability, responsiveness, and overall user experience.	3
Internal prototype testing	Define the testing scope	Determine the areas of the prototype that need to be tested and create a test plan that outlines the test cases to be executed.	1
	Set up testing	Prepare the testing environment with the	2

	environment	necessary software, hardware, and tools needed to conduct the testing.	
	Execute test cases	Conduct functional and non-functional testing of the prototype by executing the test cases defined in the test plan. This includes testing the user interface, functionality, performance, security, and compatibility of the prototype.	3
	Document, track, and fix defects	Document any defects or issues identified during testing and fix the defects.	4
	Verify defect fixes	Verify that the defects or issues identified during testing have been fixed, and re-test the prototype to ensure that the fixes did not introduce new defects.	5
Stakeholders prototype evaluation	Conduct evaluation session	Schedule and conduct evaluation sessions with the identified stakeholders.	1
Gathering of stakeholder feedback	Gather feedback and insights	Facilitate the evaluation sessions and encourage stakeholders to provide feedback, comments, and suggestions about the prototype. Document their insights on the strengths, weaknesses, and areas for improvement.	1
	Analyze evaluation results	Analyze the feedback and data collected during the evaluation sessions. Identify the prototype's strengths and areas that need improvement.	2
Proper documentation of user feedback for future use	Identify actionable improvements	Based on the evaluation results, identify specific improvements or enhancements that can be made to address the identified issues or meet stakeholder needs more effectively.	1
	Document evaluation findings	Document the evaluation findings, including the feedback received, insights gained, and recommendations for further development or refinement of the prototype.	2
Stakeholder evaluation discussion and planning	Stakeholder feedback evaluation	Discuss feedback gathered from stakeholders, analyze the stakeholder evaluation documents	1
	Create prototype improvement plan	Create a plan to improve the prototype based on the feedback given by the stakeholders and identify and plan out new requirements as requested by the stakeholders	2
Prototype improvements creation	Define improved prototype objectives	Clearly define the objectives and goals of the improved prototype. Determine what we want to achieve with the prototype and what aspects of the project you want to demonstrate.	1

	Build the improved prototype	Develop the improved prototype using the chosen technologies, frameworks, or development tools. Start with the core functionalities and gradually add more features based on the project scope.	2
Prototype improvements testing	Test and validate the improved prototype	Conduct usability testing and gather feedback from target users or stakeholders. Identify any issues, usability problems, or areas for improvement. Iterate on the prototype based on the feedback received.	1
	Refine and optimize the improved prototype	Refine the user interface, improve the user experience, and optimize the performance of the prototype based on the feedback and testing results. Make necessary adjustments to enhance the overall quality of the prototype.	2
Final requirements documentation creation	Review and consolidate requirements	Gather all the requirements that have been gathered and documented throughout the project. Ensure that they are accurate, complete, and consistent.	1
	Prioritize requirements	Analyze the collected requirements and prioritize them based on their importance and impact on the project. Identify critical requirements that must be included in the final documentation.	2
	Document the final requirements	Prepare a comprehensive and well-structured document that captures all the finalized requirements. The document should include clear descriptions, acceptance criteria, and any necessary diagrams or visuals to aid understanding.	3
Final requirements documentation approval	Obtain approval	Collaborate with the appropriate stakeholders to obtain formal approval of the final requirements document.	1
Documentation hand over	Documentation hand over	The final requirements documentation will be given to the development team to aid in the full-scale development stage.	1
Final solution creation	Review requirements	Thoroughly review the finalized requirements documentation to ensure a clear understanding of the project's objectives, scope, and functional requirements.	1
	Additional functionality improvements and addition	Any functionality or improvements not included within the prototyping stage will be reviewed and implemented into the final solution.	2
	Conduct unit testing	Test each component or module individually to ensure that it functions correctly and meets the specified requirements. Use testing frameworks	3

		and techniques to validate the behavior and performance of the implemented solution components.	
	Obtain user acceptance	Collaborate with stakeholders, including end-users, to obtain their acceptance and feedback on the developed solution. Conduct user acceptance testing to ensure that the solution meets their expectations and usability requirements.	4
Best practice development	Ensure best practice development	Best practices for software development will be followed to create the final solution with optimum performance and ease of use in mind.	1
Version control usage	Monitor and analyze project history	Use the version control system's capabilities to monitor and analyze the project's version history to understand development progress and track the impact of changes.	1
	Maintain documentation	Document the version control usage guidelines, workflows, and any specific procedures or conventions related to your project. This documentation serves as a reference for team members and helps onboard new developers.	2
Continuous integration	Implement continuous integration	A proper automated testing and continuous integration system will be put into place to ensure problems with code is identified and dealt with efficiently.	1
Solution testing creation	Define the testing scope	Determine the areas of the prototype that need to be tested and create a test plan that outlines the test cases to be executed.	1
	Set up testing environment	Prepare the testing environment with the necessary software, hardware, and tools needed to conduct the testing.	2
Perform solution testing	Execute test cases	Conduct functional and non-functional testing of the prototype by executing the test cases defined in the test plan. This includes testing the user interface, functionality, performance, security, and compatibility of the prototype.	1
Problem identification and resolution	Document, track, and fix defects	Document any defects or issues identified during testing and fix the defects.	1
	Verify defect fixes	Verify that the defects or issues identified during testing have been fixed, and re-test the prototype to ensure that the fixes did not introduce new defects.	2
Documentation updates	Update documentation	Based on the tests performed and the resolution of any problems identified within the testing process, documentation will be updated to reflect any features that were implemented and tested to see if	1

		they worked.	
Deployment preparation	Obtain necessary approvals	Seek approvals from relevant stakeholders, such as project managers, quality assurance teams, and system administrators, before proceeding with the deployment. Ensure that all necessary signoffs and authorizations are obtained.	1
	Create deployment plan	Develop a detailed plan that outlines the steps and sequence of actions required for a successful deployment. Include instructions for each deployment component, such as database migrations, configuration updates, and server setup.	2
	Finalize deployment environment	Determine the target environment for deployment, such as production servers, cloud platforms, or a staging environment. Ensure that the environment is properly configured, including necessary hardware, software, and network resources.	3
Deployment execution	Schedule and execute deployment	Set a suitable deployment window and execute the deployment plan according to the deployment strategy. Document the steps, monitor the progress, and perform necessary validations during and after the deployment.	1
Final deployment verification	Conduct post-deployment testing and verification	Do testing after the solution has been deployed successfully to verify that the application is functioning correctly in the production environment. Test critical functionality, integration points, and monitor performance to ensure a successful deployment.	1
End user training	Develop training materials	Create training materials, such as user manuals, guides, tutorials or videos. Ensure that the materials are comprehensive, easy to understand, and aligned with the project's functionality and user requirements.	1
	Plan training sessions	Develop a training schedule that accommodates the availability of end users. Determine the appropriate training format, such as classroom sessions or virtual training.	2
	Conduct training sessions	Deliver the training sessions to end users following the defined training plan and materials. Provide clear instructions and demonstrations to help users understand and apply the concepts and features of the solution.	3
Post deployment monitoring	Post deployment monitoring	Monitor the functioning of the solution once deployed and being used by the end users. Any problems identified and	1

		additional requirements requested must then be documented	
Solution maintenance	Evaluate Post deployment monitoring documentation	Evaluate the problems and issues identified with the post deployment monitoring and prioritize them to be resolved	1
	Implement fixes	Implement any necessary patches, bug fixes or feature improvements as deemed to be necessary from the monitoring and evaluation of the deployed solution.	2
System upgrades or migrations	Upgrade or migrate system	If deemed to be necessary, system upgrades or migrations will be planned thoroughly and executed.	1

1.4 Milestones

Milestone Title	Milestone Description	Milestone Date
Feasibility Study Document Completed and Submitted	The project's evaluation and analysis phase are completed, during which the viability and practicability of the proposed solution are assessed and approved by the client.	*26 May 2023*
Business Case Document Completed and Submitted	Three solutions were identified and presented to the stakeholders. One viable solution was chosen. The business case for the chosen solution was approved by the stakeholders	*26 May 2023*
Project Proposal Presentation for stakeholders	Engagement with all stakeholders on the progress of the project in the form of a presentation. Recommendations accepted from client.	*09 Jun 2023*
Project Plan	This comprises all planning, phase tasks, and activities to guarantee that the relevant tools are ready.	*09 Jun 2023*
Project Plan Accepted by Stakeholders	The project plan was reviewed by all the stakeholders, any identified errors were documented for correction, and the stakeholders approved and accepted the project plan.	*9 Jun 2023*
FOCUS AREA: Design and test DB implementation	Design and test database implementation	*9 Jun 2023*
FOCUS AREA: Build backend to integrate new DB	Build backend to integrate new database	*30 Jun 2023*
OBJECTIVE AUDITS : Design and test DB implementation	Design and test database implementation	*15 Aug 2023*
OBJECTIVE AUDITS: Build backend to integrate new DB	Build backend to integrate new database	*30 Aug 2023*
ADMIN PORTAL : Build backend to integrate new DB	Implementation of the database for the admin portal according to the client's requirements.	*15 Sept 2023*
ADMIN PORTAL: Build frontend	Implementation of the admin portal according to the client's requirements.	*30 Sept 2023*
Prototype testing (GUI)	The implementation of the prototype has commenced and requires testing before being reviewed by stakeholders	*01 Oct 2023*
Application Prototype Accepted by Stakeholders	Stakeholders have evaluated the graphical user interface and have found it to be user-friendly. Consequently, the stakeholders and end-users are satisfied with it, leading to its approval.	*05 Oct 2023*
User Manual	The manual that provides instructions to end-users is complete.	*15 Oct 2023*
Training	Training sessions will be conducted to teach end-users how to utilize the software solution	*30 Nov 2023*

	effectively.	
All Deliverables Accepted by Stakeholders	All the necessary deliverables have been provided to the stakeholders and have been approved and accepted by them.	*30 Oct 2023*
Solution deployed	The solution has been successfully deployed into the environment, and users have been adequately trained on how to use the software.	*01 Nov 2023*
Maintenance	The maintenance phase has begun, and any identified bugs will be addressed and resolved.	*05 Nov 2023*

1.5 Payment Milestones

The calculation of the payment milestones will be under Appendices.

Milestone Title	Milestone Description	Payment Date	Amount
FOCUS AREA: Design and test DB implementation	Design and test database implementation	*9 Jun 2023*	R9600
FOCUS AREA: Build backend to integrate new DB	Build backend to integrate new database	*30 Jun 2023*	R9600
OBJECTIVE AUDITS : Design and test DB implementation	Design and test database implementation	*15 Aug 2023*	R9600
OBJECTIVE AUDITS: Build backend to integrate new DB	Build backend to integrate new database	*30 Aug 2023*	R9600
ADMIN PORTAL : Build backend to integrate new DB	Implementation of the database for the admin portal according to the client's requirements.	*15 Sept 2023*	R38400
ADMIN PORTAL: Build frontend	Implementation of the admin portal according to the client's requirements.	*30 Sept 2023*	R38400

1.6 Effort

The following human resources will be required to complete all the tasks of the project and ensure the project's success:

Overview of Job Titles and Associated Expenses		
Job Title	**Description**	**Hourly Rate**
Project Manager Tina Van Niekerk	A project manager guides the team through the project life cycle, making sure that the team is going in the right direction through planning, budgeting, scheduling, and monitoring of a project plan. The project manager is the one that presents the team and makes sure that the	R400

	client is satisfied with their product and that the deadlines are met in time.	
Project Lead: Gerni Visser	A project leader is an expert who manages teams and ensures a project is completed. They interact with the team, inspire them, attend to their requirements, promote a welcoming and effective work atmosphere, and schedule meetings with the client and the project manager.	R300
Senior Software Developer	A senior developer is an experienced developer that is responsible and has technical experience; they are responsible for testing, designing software applications, and leading a development team	R250
Junior Software Developer	A less experienced developer, writing simple code, addressing bugs, and helping the Development Manager with all design-related duties are their main responsibilities.	R200

Front-End Development Team	
*The Front-End team is responsible for the creation, the design and implementation of the user interface.	
Employee Name	**Role**
Daniel Coetzee	Senior Software Developer (Front-End Lead)
Given Mnisi	Junior Software Developer
Back-End Development Team	
*The Back-End team is responsible for creating, maintaining, testing, and debugging the entire back end of application or system.	
Keagan Badenhorst	Senior Software Developer (Back-End Lead)
Oarabile Makatise	Junior Software Developer

The identified human resources will accomplish each of the tasks outlined below:

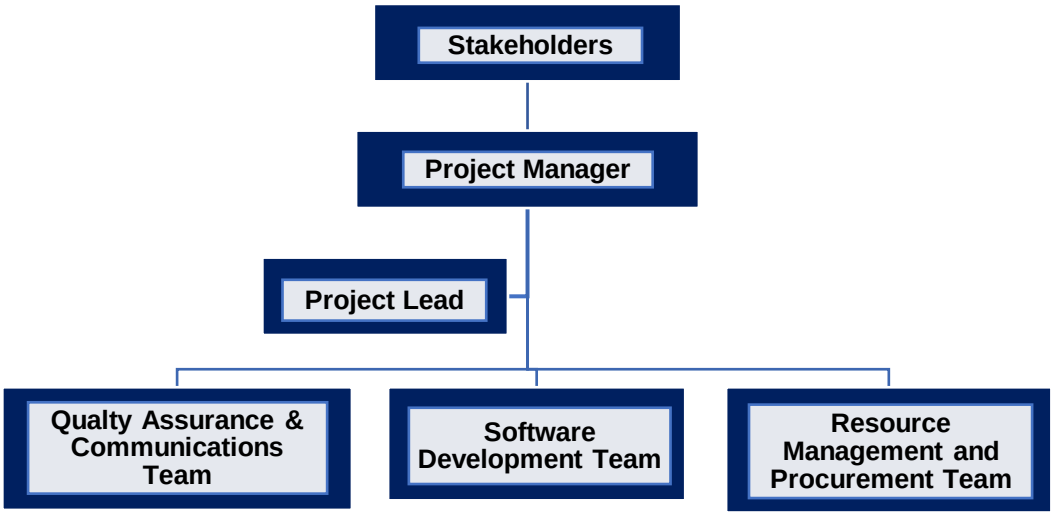
Task Title	Resource	Effort
Meet Project Sponsor & Briefing	Project manager, developers, and project leader	Meet Project Sponsor
Assemble the Project Team	Project manager, lead developers, and project leader	Identify & Assign Required Roles
	Project manager, lead developers, and project leader	Conduct Team Briefing
Perform Feasibility Study	Project manager and project leader	Analyse Current Company/Client Position
	Project manager, developers,	Establish Project

	and project leader	Feasibility Criteria
	Project manager, developers, and project leader	Identify and Evaluate Solutions
	Project leader and lead developers	Select Optimal Solution
Complete Business Case	Project manager and project leader	Analyse & Confirm Business Environment
	Project manager, developers, and project leader	Analyse & Develop Possible Solutions
	Project manager, developers, and project leader	Analyse & Evaluate Options
	Project manager, developers, and project leader	Develop Implementation Strategy
	Project leader	Make Recommendations
Project Proposal Presentation	Project leader	Project the project's progress to all stakeholders, this includes the adopted solution and giving a clear path forward.
Create a Project Plan	Project manager and project leader	Identify Actions Required for Project Plan
	Project manager, developers, and project leader	Project Plan
Complete Resource Plan	Gerni Visser	Identify Required Materials and Equipment
	Gerni Visser	Identify & assign Roles to Project Team Members
Complete Financial Plan	Daniel Coetzee	Determine Accumulated Costs During the Project's Life Cycle
	Daniel Coetzee	Create a Budget & Identify Cost Management Techniques
Complete Project Acceptance Agreement	Oarabile Makatise	Compile The Agreement Document
Create a Communications Plan & Establish Communication Channels	Given Mnisi	Identify Important Stakeholders
	Given Mnisi	Establish & Monitor Communication Networks
Create Procurement Plan	Keagan Badenhorst	Identify Supplier-only Materials & Expertise
	Keagan Badenhorst	Identify Sources of Materials & Expertise
Create a Scope Management Plan	Project manager, developers, and project leader	Confirm Scope Determined in Past

		Tasks
	Project manager and project leader	Validate & Monitor Scope
Create a Risk Plan	Project manager, developers, and project leader	Identify & Categorise Various Risks
	Project manager, developers, and project leader	Plan Risk Responses
	Project manager, developers, and project leader	Identify Risk Monitoring Methodologies
Create a Quality Management Plan	Daniel Coetzee	Identify Criteria for Evaluating Deliverables
Modifying Software Solution	Developers and Gerni Visser as Overseer	Debugging
	Back-end Developers and Gerni Visser as Overseer	Added Functionalities
	Back-end Developers and Gerni Visser as Overseer	Database Handling
	All Developers	Final Product and Integration
Create User Manual	Front end Developers	Specify Interface Instructions
	Back-end Developers	Specify Steps for Functionality Utilisation
	Project manager and project leader	Proof-Reading & Editing
Test & Debug Relevant Deliverables	Beta testers, Gerni, Daniel, and Keagan	Test Deliverable Building Blocks
	Beta testers, Gerni, Daniel, and Keagan	Debug Deliverable Building Blocks
Manage & Control Development	Project manager, developers, and project leader	Follow Proper Development Procedures
	Project manager and project leader	Perform Quality Control
	Project manager, developers, and project leader	Stakeholder Meetings
Develop an End-user Training Plan	Project manager and project leader and head developers	Develop a User Training Course
	Project manager and project leader	Prepare Training Arrangements
Perform Project Review	Project manager and project leader	Final Deliverable Quality Checks
	Project leader	Finalise Deliverables
Perform Project Closure	Gerni Visser	End-User Training
Provide Maintenance	Technical Support	Project manager and project leader
	Feature Implementation	Developers
	Patches and Updates	Developers

1.6.1Organizational Structure Chart

After identifying the people and skills needed for the project, an organizational structure was adopted, for a more detailed Organizational structure, go to Appendices.



The project team was divided into 3 teams, each team with their team lead reporting directly to the project lead. The project lead in turn reported to the project manager. This allowed for easier assignment and management of tasks and project progress with each team being accountable for a set of tasks. For a more detailed Organizational Breakdown Structure (OBS) please find the attached appendix G 9.6.1.

Some of the general activities of each team are outlined below:

Communications Management and Quality Assurance Management Team Activities

- Communications, this includes project documentation compiling
- Human Resources management
- Implementation and adoption of team charter
- Training and development
- Software testing and debugging

Software Development Team Activities

- Front-End and Back-End development

- Implementation and use of Software Development Life Cycle

Resource Management and Procurement Management Team Activities

- Resources Management
  - Estimating activity resources
- Procurement Management
  - Acquiring resources
  - Development of project team

1.6.2 Estimation of Activity Resources

To ensure the success of the project the following estimate of activity resources was used, the diagram will be under Appendices.

Activity / Task	Assignee	Role	Experience
Analysis of User interface and database	Keagan Badenhorst	Analyst	3+
Design and development of the User Interface	Daniel Coetzee	Lead Software developer and designer	5+
	Given Mnisi	Software Developer	2+
Design and testing of the database	Gerni Vesser	Database designer and test engineer	5+
Development of the database	Keagan Badenhorst	Lead back-end software developer	4.5+
	Oarabile Makatise	Software developer	2+

1.6.3 ACQUIRING RESOURCES

Resource Assignment

The Human Resource Team established an inventory list of skills of all the employees participating in the project. This is helpful in keeping track of the skills necessary for the project and those needed which could be potentially outsourced. See Appendices for the skills inventory of all the employees of the COBIT solution.

Resource Loading

A communication channel (Discord) is formed where each member regularly communicates their time schedule to the project manager in addition to the class timetable to avoid overallocation of tasks.

2 Project Plan

2.1 Schedule

Please take note of the following:

1. The Gantt chart is found in Appendix A, the full details of the table of the Gantt chart are with the project manager and project leader.

2. The post deployment monitoring, maintenance and upgrading of the software solution is also included in the Gantt chart as 100 days but is realistically as long as the client continues to need maintenance for the product.
3. The sprints that will be had are not included in the Gantt chart.
4. The ten project management areas are defined during the project's planning phase and before the project's execution phase. These areas are enforced and controlled throughout the project's subsequent life cycle phases. Although it is not indicated on the Gantt chart, they are all predecessors to the implementation phase. It is not indicated due to the clutter it would cause.
5. The Gantt chart contains iterative loops for quality assured development.

2.2 Dependencies

Finish to Start: Task 1 cannot be started before Task 2 has been finished.

Activity Title	Depends on	Dependency Type
New requirements identification	Solution review	Finish to Start
New requirements analysis	New requirements analysis	Finish to Start
Business case creation	New requirements analysis	Finish to Start
Feasibility study creation	Business case creation	Finish to Start
Feature priority analysis	Feasibility study creation	Finish to Start
Initial prototype creation	Feature priority analysis	Finish to Start
Prototype user preparation	Initial prototype creation	Finish to Start
Internal prototype testing	Prototype user preparation	Finish to Start
Stakeholders prototype evaluation	Internal prototype testing	Finish to Start
Gathering of stakeholder feedback	Stakeholders prototype evaluation	Finish to Start
Proper documentation of user feedback	Gathering of stakeholder feedback	Finish to Start
Stakeholder evaluation	Proper documentation of user feedback for future use	Finish to Start

discussion and planning		
Prototype improvements creation	Stakeholder evaluation discussion and planning	Finish to Start
Prototype improvements testing	Prototype improvements creation	Finish to Start
Prototyping feedback and improvement loop.	Prototype improvements testing	Finish to Start
Final requirements documentation creation	Prototyping feedback and improvement loop.	Finish to Start
Final requirements documentation approval	Final requirements documentation creation	Finish to Start
Documentation hand over.	Final requirements documentation approval	Finish to Start
Final solution creation	Documentation hand over.	Finish to Start
Solution testing creation	Final solution creation	Finish to Start
Perform solution testing	Solution testing creation	Finish to Start
Problem identification and resolution	Perform solution testing	Finish to Start
Documentation updates	Problem identification and resolution	Finish to Start
Deployment preparation	Documentation updates	Finish to Start
Deployment execution	Deployment preparation	Finish to Start
Final deployment verification	Deployment execution	Finish to Start
End user training	Final deployment verification	Finish to Start
Post deployment monitoring	Final deployment verification & End user training	Finish to Start
Solution maintenance	Post deployment monitoring	Finish to Start

2.3 Assumptions

- The average end-user will have internet access, and any stable internet connection with sufficient data will be suitable for using the website's functionalities. The specific data requirements will be clearly defined in the user manual.
- The end-user can utilize the software solution by either having a pre-installed web browser on their device or installing web browser software on the device.
- The implementation of the solution will strictly adhere to the defined scope. In the unlikely event of scope creep, adjustments will be made to the project's schedule and budget to accommodate any changes.
- All milestones will be achieved within the planned timeline. The project schedule has been designed with flexibility to account for any obstacles that may arise during the project.
- No external resources, such as outsourced personnel, will be required by the project team to complete any aspect of the project. The project team members possess the necessary expertise to effectively approach and implement the solution.
- Continuous feedback from end-users and stakeholders will ensure the cultural acceptability of the software solution throughout its development. Stakeholders will have regular involvement in the project's development to ensure their satisfaction, with any suggestions implemented as long as they do not lead to scope creep.
- The project sponsor and other stakeholders will provide timely feedback (within approximately 2 weeks) to address any inquiries from the project team regarding the overall project design. If needed, alternative sources will be available to clarify any uncertainties expressed by the project team.
- End-users will actively cooperate, providing valuable insights into their cultural preferences and preferred methods of operation. This collaboration will also help identify any aesthetic interface preferences among end-users.
- Stakeholders are encouraged to communicate any concerns they have regarding the project promptly. It is assumed that stakeholders will not withhold concerns, and addressing them early on will ensure their consideration in the final product.
- The project team has a well-established working relationship, minimizing the likelihood of conflicts. In the unlikely event of conflicts, it is expected that they will be resolved without compromising the quality of deliverables, budget, or schedule.
- The project must be completed before the end of the year, with the assumption that the academic year will conclude by the end of 2023.
- The customer expects the project team to provide ongoing maintenance for the software solution.

2.4 Constraints

- The project's timeline and deadlines will not be extended unless there is an increase in the project's scope. Any changes to the project scope will be reflected in the project schedule, just like changes to the project budget. The following deliverables will be provided to the project stakeholders throughout the project's life cycle:

    - Feasibility Study Document: April 3, 2023.
    - Business Case Document: April 3, 2023.
    - Project Proposal Presentation for stakeholders: April 18, 2023.
    - Project Plan: June 9, 2023.
    - Project Plan Accepted by Stakeholders: June 17, 2023.
    - Prototype testing (GUI): July 25, 2023.
    - Application Prototype Accepted by Stakeholders: September 20, 2023.
    - Database Complete: October 4, 2023.

- Software Solution: November 25, 2023.
- Functionality & Technical Specifications: October 5, 2023.
- User Manual: November 30, 2023.
- Training: October 5, 2023.
- All Deliverables Accepted by Stakeholders: September 29, 2023.
- Solution deployed: November 5, 2023.
- Maintenance: November 5, 2023.

- The project team size will remain unchanged to avoid any adjustments to the budget and schedule. In case a project team role becomes vacant, another experienced employee will be assigned to fulfil that role at the same price stated in the business case.

- The project scope will remain as specified in the project proposal's addendums, namely the feasibility study and business case. Any changes or additional features requested by stakeholders will need approval from the project team, and if implemented, they will be accommodated in the schedule and budget accordingly.

- The project budget will not increase unless the project's scope is increased. Changes reflected in the budget as a result of scope creep will be proportionate to the scale of the changes to the project scope.

3 Project Scope and Goals

The proposed project's primary objective is the development of a software system based on the automation and simplicity of audits within businesses. Below, a brief discussion of the software program's complete specifications will be provided:

- **Multiple focus areas** – the current system only accommodates the COBIT19 (Core Model) focus area which is just basic for every company. A **focus area** is an area of governance that can be addressed by a grouping of governance and management objectives and their constituent parts. New focus areas such as Information Security, Information and Technology Risk, DevOps, Academic Integrity, and small and medium enterprises (SMEs).

- **Administrative Portal**
  The current system has the limitation of the absence of an administrative portal for adding knowledge areas and assigning auditors to certain focus areas. However, one of the specifications is to implement an administrative portal to overcome this challenge. The administrative portal will serve as a super user, having privileged access rights. One of the primary features is to add knowledge areas to the software system. Knowledge areas are areas or topics that auditors pay attention to during their evaluations. The super user can simply add, change, or update knowledge areas, maintaining the system current with the most recent business developments.
  The administrative portal will also be capable of assigning certain auditors to their focus areas, and can also demote auditors, assign roles, manage auditors, and has privilege rights over the system.

- **Database**
  The client mentioned that the database is not working properly. Specifically, the tables are not well connected which makes it difficult to add features in the front-end, so the database needs to be fixed so that it can be able to generate correct information, and this will result in the reporting functionality to output reliable information.

Above are all the specifications that were mentioned, and some arose when the feasibility study was conducted. The client wants the software application to remain web-based since it

is compatible with many devices. Throughout this project, it was decided that prototyping is the best solution to go with so that the client can see what has become of the system and evaluate it and give the team feedback. That is the main reason that the database functionality is vital to start with because some of the requirements are nearly impossible to do with the current database.

4 Deliverables

4.1 Documentation Orientated Deliverable

The following are the deliverables that must be submitted as part of the project. Please note that the Tender Response is not included in these deliverables, as we are building upon an existing software solution.

Deliverable	Description
Feasibility Study	The feasibility document explores the proposed alternatives and identifies the most viable option. Three alternatives were evaluated considering their respective costs, strengths, and weaknesses. The alternative that received the highest score was determined to be the most suitable, which involved continuing with the current web-based system.
Business Case	The business case discusses the background of developing the system, why it should be developed, it explains the reason behind doing it. This document comprehensively captures both quantifiable and non-quantifiable aspects of the proposed solution. By presenting a detailed analysis, it offers a descriptive understanding of the project's impact and feasibility.
Project Plan	The project plan guides the project control and project execution. This deliverable provides various practices to be used throughout the project lifecycle, from initiation to completion, using different cycles or methodologies. It offers a comprehensive and detailed roadmap, outlining the specific tasks, milestones, and deliverables to be accomplished at each stage of the project.

4.2 Secondary Documentation Deliverable

Throughout the course of the project, there will be certain documentation that the COBIT consultants will provide which pertains to:

- Procurement of necessary software packages for project execution.
- Identification and mitigation of potential issues during the project's lifecycle.
- Allocation of resources for each phase, task, and activity.
- Risk assessment and mitigation strategies for potential risks.
- Flexibility in scheduling changes and accommodating unforeseen issues or client requests for additional functionalities.
- Implementation of quality measures to ensure adherence to standards.
- Communication plans outlining arrangements between project stakeholders and the project team.
- Identification of areas for improvement in the software solution.

4.3 Primary Deliverable

The primary objective of this project is to create a software solution that will simplify audits in organizations. As Information Technology (IT) audits are essential in the governance and management of an organization, they make it possible to manage and allocate tasks, resources and people within the organization. The overall effectiveness of an IT audit determines the productivity and functioning of an organization. The system will be developed to meet the specifications presented by the client Phenyo Modisane.

The primary goal of this project is to implement a web-based application that will enable organizations to conduct audits more efficiently. The software solution aims to streamline the auditing process, allowing for faster assessments. It will be accessible through a browser and can be hosted either on NWU IT services or on Microsoft Azure, with the latter option incurring additional costs.

4.4 Secondary Deliverables

These are the secondary deliverables of the project which includes the user manuals and the user training so that they can be able to utilize the software solution.

4.4.1 User Manuals

A user manual is a comprehensive document that provides guidance to users on a software application. It begins with instructions on the installation process and addresses frequently asked questions that users commonly encounter. The main purpose of this document is to assist users in understanding and utilizing the software effectively by providing detailed information about its features, functionalities, and usage.

4.4.2 User training

Apart from user manuals, it is essential to provide user training to ensure effective utilization of the software. In certain cases, relying solely on documentation may not be sufficient. To address this, COBIT Consultants will be available to offer user training sessions, providing hands-on experience with the tool.

4.5 Stakeholders

Stakeholders	Power	Interest	Concerns
Phenyo Modisane (Client)	High	High	• The project deliverables must go in line with the clients. • The project deliverables must be carried out in a lawful way. • The project deliverables must undergo quality control. • The project must be delivered within budget, time and cost. • The client should be satisfied with the final project

Neels Kruger (Main advisory and regulating entity)	Medium	High	• Implementation of appropriate methodologies and best practices throughout the project. • The correct lifecycles must be carried out in this project.
North-West University (Background Organization)	Low	Low	• The software solution should not generate any negative publicity for the university.
End-users	Medium	High	• The software should be user-friendly and meet the satisfaction of end-users. • Their satisfaction is a significant milestone for the success of this project.

5 Critical Success Factors

The success of this project relies on numerous critical factors. Failure in any of the following areas may result in an unsuccessful outcome for the project.

Critical success factor	Description
Budget	The first critical success factor is the budget, the project should always be on a predetermined budget for it to be successful. For detailed information regarding the budget, please refer to the project plan document
Schedule	The project team's aim is to be ahead of schedule to allow for flexibility in addressing unforeseen factors. For detailed information regarding the schedule, please refer to the project plan document.
Stakeholder	One of the primaries aims of this project is to make the stakeholders satisfied, which is an important critical success factor. This can only occur if there's effective communication between the project team and the stakeholders.
Scope	The project team should not get carried away and change the project scope that has been identified at the start of the project.
Deliverable	The deliverables should be delivered on time. In case of unforeseen factors that may impact the delivery schedule, it is crucial to communicate such circumstances as early as possible.
Quality of deliverable	The software should not only be delivered on time but should be delivered of the highest quality possible. For detailed information regarding the Quality management please refer to the Business case.
Quality standards	The final quality of the project should not change it should be

	the same quality that was determined at the beginning of the project.
Minimum requirements of the Product	The product should be able to run on the client's devices (Laptop) with the same requirements or standard that were specified from the start.
Quality Control	The development of the software should prioritize the highest quality standards, it should not be developed with the intention of being fixed or improved at a later stage.
End-users	The end-users should get sufficient end-user training to be able to adopt with the software and be able to use it.
Changes in Schedule	If there are any changes with the current schedule, stakeholders should be informed formally so that they can approve the new schedule.
Budget Changes	In the event of any changes to the budget, it is imperative to inform those who funded the project. Transparent communication is essential to ensure that all parties involved have a clear understanding of the revised budget
Project environment	The environment of the project should be secure for the project team, it should not affect the project in anyway.
Risks	The environment should be able to prevent risks from occurring. Risks should be identified and should be mitigated from happening as soon as they are identified, appropriate actions should be taken. In situations involving significant risks, it is crucial to ensure that the project's critical components, including the devices used by the project team, are not adversely affected. Adequate measures should be in place to mitigate potential risks and protect vital project assets. Additionally, regular backups of project data and resources should be implemented to safeguard against unforeseen events or incidents. For detailed information regarding the Risk management please refer to the Business case.

6 Risk Plan

We will focus on examining a high-level overview of potential risks in the project. It is impractical to create a risk plan for every conceivable risk that may arise. Instead, we will prioritize the risks that have a significant impact on the critical success factors of the project. The table provided assumes the probability and impact of these risks. However, due to the inherent complexity of the problem, accurately determining the probability and impact of these risks is challenging, as they may vary depending on the specific circumstances of each project.

Risk description	Probability (1-10)	Impact (1-10)	Priority (1-10)	Triggers	Response plan
Behind	3	8	8	Work takes	Prioritize important goals and

schedule and missing deadlines				longer than expected.	milestones. Negotiate another due date with the stakeholder.
Hosting incompatibility	4	6	7	Incompatibility issues identified during deployment or system integration.	To mitigate this risk, we will utilize Docker to allow for compatibility across different hosting environments. Docker will provide a containerized solution that ensures the software can be deployed and run smoothly, regardless of the hosting environment.
Stakeholder unsatisfied	6	9	8	Feedback indicating dissatisfaction or misalignment between project deliverables and stakeholder expectations.	To address this risk, we will implement continuous prototype evaluation throughout the project. Regular feedback loops will be established with stakeholders to gather their input and validate that the project is progressing in line with their expectations. Additionally, setting clear deliverables and managing stakeholder expectations from the early stages will help ensure that their needs are understood and addressed effectively.
Scope Creep	5	7	6	Requests for additional features or functionalities that are not within the defined scope.	To manage scope creep, we will establish rigid and detailed milestone definitions. These milestones will serve as checkpoints to evaluate any requests for scope changes. Each request will be assessed against the project objectives and alignment with stakeholder needs. Changes that fall within the defined scope and do not significantly impact project timelines or resources will be considered, while requests that introduce substantial changes or delays will be evaluated separately and may require adjustments to the project plan and additional stakeholder engagement.

7 Handling Conflict in the project team

Conflicts among team members can arise in any project. Understanding everyone's perspective is essential for resolving conflicts effectively. This project followed three steps in solving conflict which includes preparation, understanding and agreements.

Conflict is inevitable in project development, but not all conflict is bad, some conflict is needed to spark new ideas, better alternatives, motivation and better collaboration. With that

said, it is important to manage conflict within a project team to ensure productivity and professional workmanship between the employees. Several techniques and tools are available to evaluate this, for the purpose of the project Blake and Mouton (1964) strategies to handle conflict will be used. The strategies are based on the high, medium or low importance on two levels: importance of the task or goal, and the importance of the relationship between the people concerned.

7.1 Confrontation

The first strategy is confrontation, when both the task and relationship are of high importance the project manager or project lead will use a problem-solving approach – face the conflict directly to allow affected parties to work through their disagreements.

7.2 Compromise

When both the task and the relationship importance are medium, a conflict between team members will be resolved by looking for a solution that satisfies the parties involved in the dispute.

7.3 Smoothing

When the relationship is of high importance and the task is of low importance, the areas of differences will be avoided, and emphasis placed on the areas of agreement.

7.4 Final say

Final Say is also an effective strategy used to solve conflict when the relationship is of high importance and the task is of low importance. In this strategy, the project manager has the final say, they impose their viewpoint at the potential expense of another.

7.5 Withdrawal

When both the relationship and the task are of low importance, the affected parties will be encouraged to withdraw from the conflict.

Some of the other ways to be used to manage conflict include:

- The use of collaboration, where different viewpoints are accepted to reach a conclusion in the best interest of the project to avoid conflict.
- Team building strategies will also be used to nurture team members and encourage them to work together.
- Clear communication boundaries will be established during virtual communications.
- Regular meetings to focus on meeting project objectives and producing positive results will also be established.
- Taking a loss as a team and avoiding the blame game, moreover, acknowledging individual and group accomplishments.

8 Handling Conflict with Client

Open Communication Channels: We will establish clear and open lines of communication with clients from the beginning of the project and regularly engage in discussions to understand their needs, concerns, and expectations. Encourage open dialogue to identify and address any potential conflicts at an early stage.

Mediation and Facilitation: If conflicts escalate or become complex, we will consider involving a neutral third party as a mediator or facilitator. Their role is to assist in facilitating

open and constructive communication between all parties involved, helping find mutually agreeable solutions.

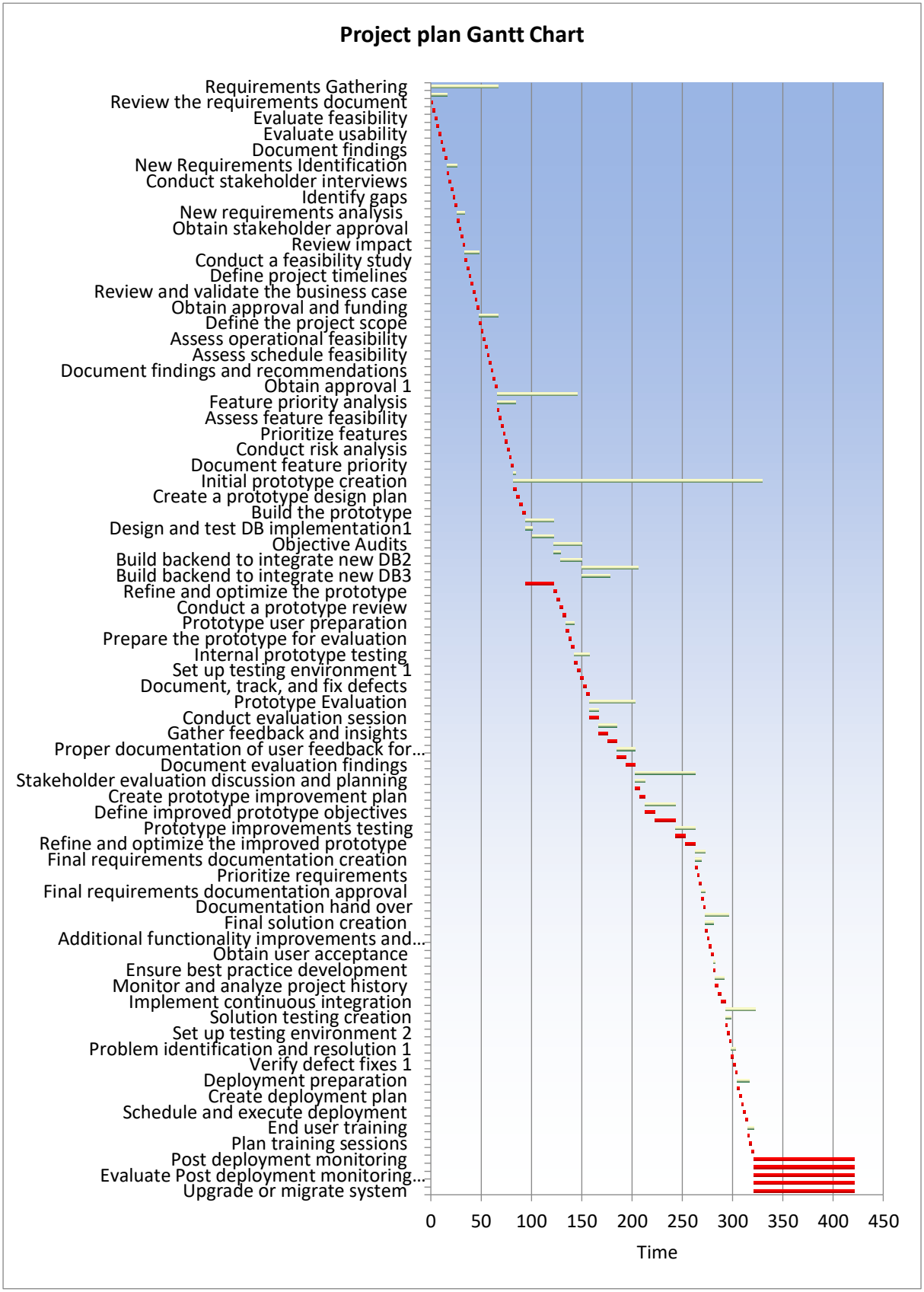
Seek Win-Win Solutions: We will approach conflicts with a problem-solving mindset, aiming for win-win outcome and explore alternative solutions and compromises that address the client's concerns while also aligning with project objectives. Focus on finding common ground and reaching agreements that benefit all parties involved.

Document Agreements and Changes: We will maintain clear documentation of any agreements or changes made during conflict resolution. This helps ensure that all parties have a shared understanding of the resolutions reached and prevents misunderstandings in the future.

Escalation Procedures: Establish clear escalation procedures in case conflicts cannot be resolved at lower levels. Define appropriate points of escalation and involve higher-level management or executives, if necessary, to address conflicts and make informed decisions.

9 Appendices

9.1 Appendix A: Project Plan – Gantt Chart



9.2 Appendix B: Quality Plan

9.2.1 Quality Targets

The client has the need for a software solution that meets the following quality targets:

- Accuracy: The system should provide accurate and reliable assessment results, ensuring that the assessment of maturity levels reflects the actual capabilities of the organization's I&T processes.
- Usability: The solution should have a user-friendly interface and intuitive navigation, enabling assessors to easily understand and perform the assessment process without extensive training or technical expertise.
- Reliability: The system should be stable and consistently available, minimizing downtime and ensuring that assessors can rely on it for conducting assessments whenever needed.
- Scalability: The solution should be able to handle assessments for organizations of varying sizes and complexities, accommodating a growing number of users and increasing data volumes without compromising performance.
- Security: The system should implement robust security measures to protect the confidentiality, integrity, and availability of the assessment data. It should comply with relevant data protection regulations and industry best practices.
- Reporting and Visualization: The solution should offer comprehensive reporting capabilities, allowing assessors to generate clear and concise reports that effectively communicate the maturity levels of I&T processes. It should also provide visualizations, such as graphs and charts, to help stakeholders better understand the assessment results.
- Compliance: The software should align with the COBIT 2019 framework and guidelines, ensuring that the assessment process adheres to the industry-recognized standards and best practices outlined by ISACA.

9.2.2 Quality Assurance Plan

The following techniques will be used to assure the client that the quality targets will be achieved:

Technique	Description	Frequency
Internal reviewing	Perform quality reviews by external resources, like the development team	This will be done weekly in scrum meetings.
Continuous Stakeholder Evaluation	Continuous Evaluation on completion of milestone by Client	Will be performed after each milestone has been completed
External Reviewing	Perform quality reviews by external resources and get feedback from Auditors testing the system once system in working state.	Will be performed after the system is in a working condition.

9.2.3 Assumptions

The following assumptions are made by the development team during the quality planning process:

- The cooperation of end-users will enable the project team to gain valuable insights into their cultural preferences and preferred operational methods. Additionally, this collaboration will help the team identify any aesthetic interface preferences among end-users.
- The project sponsor and other stakeholders will provide timely feedback (within approximately 2 weeks) in response to any inquiries the project team may have regarding the overall project design.
- Stakeholders are encouraged to express any concerns they have regarding the project without hesitation. It is expected that stakeholders will not keep their concerns to themselves and instead communicate them to the project team as soon as they arise, ensuring that they are taken into account in the final product.
- The quality check process will be carried out by an impartial entity that was not involved in the creation of the deliverables. This ensures that the deliverables meet the required standards.
- Work that has not reached an acceptable stopping point will not undergo a quality check. If a deliverable is still in the midst of significant development, the team will continue until a stage is reached where the deliverable is stable and can be adequately tested.

9.2.4 Quality process

The following steps will be taken to monitor the quality of the deliverables:

- Quality Planning step: This involves establishing quality objectives and determining the processes, resources, and activities required to meet those objectives. It includes defining the criteria for measuring quality, identifying the deliverables that need to be monitored, and establishing quality standards.
- Quality Assurance step: This focuses on implementing the planned quality activities and processes to ensure that the deliverables meet the established quality standards. It involves conducting inspections, reviews, stakeholder evaluations, and audits to identify any defects, errors, or deviations from the defined quality criteria, this will allow us to identify and address any quality issues early in the project lifecycle, preventing them from escalating and affecting the final deliverables.
- Quality Control step: This involves monitoring and measuring the actual quality of the deliverables throughout the project execution. It includes activities such as testing, validation, stakeholder evaluations, and ongoing inspection of the deliverables against the defined quality standards. This ensures that the deliverables meet the specified requirements and that any defects or issues are identified and corrected. It will involve the use of tools, techniques, and methodologies to systematically assess the deliverables and track their quality performance.

9.2.5 Quality control activities

To ensure the successful management of quality within our project, the following activities will be performed:

- Schedule Control: We will establish a schedule control process to closely monitor and manage the project timeline. Regular assessments will be conducted to identify any schedule deviations and take appropriate corrective actions to keep the project on track.

- Cost Control: A robust cost control mechanism will be implemented to track project expenses and adhere to the allocated budget. We will regularly monitor costs, identify any potential overruns or risks, and employ effective measures to mitigate them and maintain financial discipline.
- Risk Control: The project plan will incorporate a comprehensive risk control strategy that will involve identifying, assessing, and proactively managing risks throughout the project lifecycle to minimize their impact on quality outcomes.
- Scope Verification and Control: We will establish a process for scope verification and control to ensure that all project deliverables meet the defined requirements. Regular scope reviews will be conducted to verify compliance and prevent scope creep, ensuring that unnecessary features do not compromise the project's quality and objectives.
- Performance Reporting: Our project plan will include a performance reporting mechanism to assess the program's operational effectiveness. We will define key performance indicators (KPIs) and benchmarks to track the program's performance and report regularly on its achievement against these targets. This will enable us to address any performance gaps promptly and maintain a high level of user satisfaction.

9.2.6 Roles within the quality control process

- **Quality Manager/Coordinator:** The quality manager/coordinator will be responsible for overseeing the overall quality control process. They will define and establish quality standards, procedures, and guidelines. They will coordinate with team members, stakeholders, and external parties to ensure that quality requirements are understood, communicated, and adhered to throughout the project. The quality manager is Gerni Visser.
- **Quality Assurance Analysts**: Quality assurance analysts will play a key role in conducting inspections, reviews, and audits of project deliverables. They will assess the deliverables against defined quality standards, perform thorough checks, and identify any defects, errors, or deviations. They will collaborate closely with the project team to address quality issues and provide recommendations for improvement. The quality assurance analysts are Daniel Coetzee and Given Mnisi.
- **Testers:** Testers will focus on ensuring the quality of the software or system being developed. They will design and execute test cases, perform functional and non-functional testing, and identify and report any bugs or issues. Testers will work closely with developers and stakeholders to validate that the software meets the defined quality criteria. The tests will be performed by Keagan Badenhorst and Oarabile Makatise as internal testers and the NWU auditing students and lecturers as external testers.
- **Project Managers:** Project managers will play a pivotal role in integrating quality control into the project plan and execution. They will define quality goals and objectives, communicate them to the team, and monitor their progress. Project managers will allocate appropriate resources, track quality metrics, and make critical decisions to ensure that quality control is prioritized throughout the project. The project manager is Tina Van Niekerk.
- **Stakeholders**: Stakeholders, including clients, customers, and end-users, will actively participate in the quality control process. They will provide input, feedback, and requirements, validating deliverables and ensuring they align with their needs. Stakeholders will engage in user acceptance testing to confirm that the final product meets their quality expectatio

9.3 Appendix D: Acceptance Plan and Criteria

9.3.1 Milestones

Milestone Title	Milestone Description	Milestone Date
Project Kick-off Meeting	Meeting with all the project members and the stakeholders, discussing the software solution. Outlining some of the project scope and the deliverables that need to be handed in.	*27 Feb 2023*
Approval of Project Charter	A complete project charter will be accepted by the approving authority and the client. Their acceptance motivates the project manager to gather resources for the project and continue with the planning stage	*14 May 2023*
Feasibility Study Document Completed and Submitted	The project's evaluation and analysis phase are completed, during which the viability and practicability of the proposed solution are assessed and approved by the client.	*26 May 2023*
Business Case Document Completed and Submitted	Three solutions were identified and presented to the stakeholders. One viable solution was chosen. The business case for the chosen solution was approved by the stakeholders	*26 May 2023*
Project Proposal Presentation for stakeholders	Engagement with all stakeholders on the progress of the project in the form of a presentation. Recommendations accepted from client.	*09 Jun 2023*
Project Plan	This comprises all planning, phase tasks, and activities to guarantee that the relevant tools are ready.	*09 Jun 2023*
Project Plan Accepted by Stakeholders	The project plan was reviewed by all the stakeholders, any identified errors were documented for correction, and the stakeholders approved and accepted the project plan.	*17 Jun 2023*
Prototype testing (GUI)	The implementation of the prototype has commenced and requires testing before being reviewed by stakeholders	*25 Jul 2023*
Application Prototype Accepted by Stakeholders	Stakeholders have evaluated the graphical user interface and have found it to be user-friendly. Consequently, the stakeholders and end-users are satisfied with it, leading to its approval.	*20 Sep 2023*
Database Complete	The development of the back end, which will support the solution.	*04 Oct 2023*
Software Solution	The software solution is complete, and it is utilized by end-users.	*25 Nov 2023*
Functionality & Technical Specifications	Functionality specifications is a document that will specify how the software functions, it consists of the dependencies and framework to be added before using the software. Technical specifications include the technology that needs to be put in place to run the software	*05 Oct 2023*

User Manual	The manual that provides instructions to end-users is complete.	*30 Nov 2023*
Training	Training sessions will be conducted to teach end-users how to utilize the software solution effectively.	*05 Oct 2023*
All Deliverables Accepted by Stakeholders	All the necessary deliverables have been provided to the stakeholders and have been approved and accepted by them.	*29 Sep 2023*
Solution deployed	The solution has been successfully deployed into the environment, and users have been adequately trained on how to use the software.	*05 Nov 2023*
Maintenance	The maintenance phase has begun, and any identified bugs will be addressed and resolved.	*05 Nov 2023*

9.3.2 Criteria

Milestone Title	Acceptance Criteria	Acceptance Standards
Project Initiation	Company Program Manager provides confirmation in writing that the Project initiation meeting has been held and the project is officially started.	**Time:** Project to start on the time that is set. **Cost:** Under budget and all dates are approved.
Feasibility Study Document Completed & Submitted	**Time**: Delivered on time **Quality:** Meet the requirements **Cost**: Under budget	Documentation were completed on time and the processes were addressed by the authority.
Business Case Document Completed & Submitted	**Time**: Delivered on time **Quality:** Meet the requirements **Cost**: Under budget	Documentation were completed on time and the processes were addressed by the authority.
Project Plan Accepted by Stakeholders	The process that will be followed satisfies the set-out documentation that guides the development.	The process that will be followed satisfies the set-out documentation that guides the development.
Application Prototype Accepted by Stakeholders	Manager have evaluated the graphical user interface and have found it to be user-friendly and confirms that it meets the requirements	Managers have evaluated the graphical user interface and have found it to be user-friendly and confirms that it meets the requirements
Database Complete	Manager has evaluated the new database, and it works according to the client's requirements.	Database works accordingly and it is available to the users to use.
Software Solution	The software solution is complete, and it is utilized by end-users. Company Program Manager approves the solution, and it is working as expected.	System functionality: • Works perfectly without any errors. • The application's performance is up to standard.
User Manual	Company program manager approves the user manual and provides all the necessary documents.	The user manual guides users about the software and the frequently asked questions.

Deliverables Complete	All the deliverables needed for this project were submitted, the Company program manager approved all the deliverables	The deliverables were submitted on time without any errors and satisfied all the specifications.
Training	Training sessions will be conducted to teach end-users how to utilize the software solution effectively and has been accepted by the Company program manager.	Users are trained well, and they know everything about the software solution.
Solution deployed	The solution has been successfully deployed into the environment and is approved by the company manager.	The system works well in an environment.
Maintenance	The Company program manager approves that there should be a maintenance phase.	The software works properly without an error and its performance is up to standard.

9.3.3 Acceptance plan – Schedule

Milestone Title		Acceptance Tests	
Milestones	Deliverables	Review Method	Reviewers
Feasibility Study Document Completed & Submitted	Feasibility Study	Evaluate meeting. Assess the document	• Systems Tester • Project Manager • Head Developers • Independent advisor
Business Case Document Completed & Submitted	Business Case	Evaluate meeting. Assess the document	• Systems Tester • Project Manager • Head Developers • Independent advisor (arranged by COBIT Consultants)
Project Plan Accepted by Stakeholders	• Project Plan • Acceptance plan • Quality plan • Communication plan	Assess the document	• Project manager • Stakeholders • Project leader
Application Prototype Accepted by Stakeholders	• GUI • Software prototype	Empirical and Heuristic Evaluation	• Systems Tester • Project Manager • Head Developers
Database Complete	• Database Design	• Conceptual Design • Logical Design • Physical Design	• Systems Tester • Project Manager • Data Quality Manager • Customer

		• Organization Design • Pre-implementation Design	Advocate • Database Administrator
Software Solution	• Complete software set up for testing	• Software Peer Review • Software management Review • Software Audit Review • Testing	• Systems Tester • Project Manager • Head Developers • Independent advisor
User Manual	• User manual complete	Evaluate document	• Project Manager and leader
Training	• User training sessions	Assessment Test	• Project manager • Head developers
Maintenance Phase	• Maintenance stage	• Inspection • Software testing • Data accuracy evaluation	• System testers • Project manager • Data Quality Manager • Customer advocate

9.3.4 Assumptions

- Project requirements will remain unchanged.
- Acceptance criteria will remain the same.
- Reviewers are available for necessary project reviews.
- There will be no changes to the project budget.
- Refer to the Project Plan Document for additional constraints.

9.4 Appendix E: Financial Plan

The following costs below will be involved in developing the software solution.

9.4.1 Labor

Overview of Job Titles and Associated Expenses		
Job Title	**Description**	**Hourly Rate**
Project Manager Tina Van Niekerk	A project manager guides the team through the project life cycle, making sure that the team is going in the right direction through planning, budgeting, scheduling, and monitoring of a project plan. The project manager is the one that presents the team and makes sure that the client is satisfied with their product and that the deadlines are met in time.	R400
Project Lead: Gerni Visser	A project leader is an expert who manages teams and ensures a project is completed. They interact with the team, inspire them, attend to their requirements, promote a welcoming and effective work atmosphere, and schedule meetings with the client and the project manager.	R300
Senior Software Developer	A senior developer is an experienced developer that is responsible and has technical experience; they are responsible for testing, designing software applications, and leading a development team	R250
Junior Software Developer	A less experienced developer, writing simple code, addressing bugs, and helping the Development Manager with all design-related duties are their main responsibilities.	R200

Front-End Development Team		
*The Front-End team is responsible for the creation, the design and implementation of the user interface.		
Employee Name	**Role**	**Hourly Rate**
Daniel Coetzee	Senior Software Developer (Front-End Lead)	R250
Given Mnisi	Junior Software Developer	R200
Back-End Development Team		
*The Back-End team is responsible for creating, maintaining, testing, and debugging the entire back end of application or system.		
Employee Name	**Role**	**Hourly Rate**
Keagan Badenhorst	Senior Software Developer (Back-End Lead)	R250
Oarabile Makatise	Junior Software Developer	R200

9.4.2 Payment Milestone Calculation

Milestone Title	Number of Developers	Hours per week	Weeks	Hourly Rate	Payment Date	Total
Implementation of Multiple focus areas	2	12	4	≈ 200	*30 Jul 2023*	R19 200
Objective Audits	2	12	4	≈ 200	*15 Aug 2023*	R19 200
Admin-Portal implementation	4	12	8	≈ 200	*30 Aug 2023*	R76 800

9.4.3 Equipment

The project team is fully equipped with all the necessary resources to successfully complete the project, ensuring that no additional expenses will be incurred in this regard. When there is any equipment needed the stakeholders will be informed.

9.4.4 Scheduling

Project Planning Phase **Duration – Approximately two weeks**			
Employee Name	**Hourly Rate**	**Project Hours**	**Total Cost**
Tina Van Niekerk	R500	40	R20 000
Gerni Visser	R400	35	R14 000
Total		75	R34 000

Construction and Testing Phase **Duration – 1.5 Months**			
Front-End Development			
Employee Name	**Hourly Rate**	**Project Hours**	**Total Cost**
Daniel Coetzee	R300	55	R16 500
Given Mnisi	R250	55	R15 000
Total		55	R31 500
Back-End Development			
Employee Name	**Hourly Rate**	**Project Hours**	**Total Cost**
Keagan Badenhorst	R300	50	R16 500
Oarabile Makatise	R250	55	R15 000

Total		105	R31 500

Project Closure Phase Duration – One weeks			
Employee Name	**Hourly Rate**	**Project Hours**	**Total Cost**
Tina Van Niekerk	R500	25	R12 500
Gerni Visser	R400	23	R11 500
Daniel Coetzee	R300	20	R6 000
Total			R30 000

9.4.5 Assumptions

The calculations used are based on the Earned Value Management (EMV) technique, tasks are assumed to progress at a constant rate.

9.5.6 The implementation of the Earned Value Management (EMV) technique for the project cost management

The EMV technique is effective in managing costs of the project since it integrates all the project constraints in cost estimations. Only the agreed-upon project adjustments are accounted for in the cost baseline thanks to the approach, which also enables monitoring of cost performance. Informing stakeholders of project modifications that would affect expenses is also made easier by doing this.

The EMV technique involves calculating 3 values for the activities from the project's WBS. The first value being the Planned Value (PV), this is the amount agreed upon and scheduled for an activity. The second value is the Actual Cost (AC); this is the realized cost amount for an activity during a specific period. The third value, Earned Value (EV), is a measure of the work done based on the authorized budget for that work. These 3 values are all expressed in Rands.

The calculations of the 3 values are used to determine the schedule and the cost variance. The cost variance (CV) is the earned value minus the actual cost, and if a negative value results it means more costs are needed to perform an activity and if a positive value results the latter is true. The Schedule Variance (SV) is calculated as the earned value minus the planned value, and if the resulting value is negative, this implies more time is required to do the activity than planned. A positive schedule variance implies that the less time was needed to complete an activity than initially planned.

The calculations of the Cost Variance (CV) and the Schedule Variance (SV) are important in monitoring the costs and the schedule for the project. Through the values obtained for the two quantities, resources are allocated as necessary to address any shortfalls and make sure that the project remains in track

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9.5.7 Activities

Various activities are required to monitor and control costs within the project. The following activities are implemented within the COBIT Consultants to address this.

- **Plan the budget** – A budget is planned to allow for the granulation of cost estimations, and to effectively allow for the allocation of resources. Having a detailed project plan ensures lower cost variances.
- **Monitor expenses** – Continuous monitoring of expenses with every completed milestone to ensure that the project remains in scope. Through this any deviations from of costs with each milestone is catered for.
- **Implementation of change control systems** – Steps are implemented to navigate any changes the project stakeholders want implemented in the project to prevent scope creep. Through these systems any changes or deviations in the project costs can be carefully dealt with.
- **Time management** – The total cost of the project is directly proportional to the increase in time allocated for the project therefore managing time is important to ensure that costs remain within scope. Time management strategies are implemented to boost productivity and allow the team to finish in time and within the budget.
- **Tracking the Earned Value** – The earned value is important for the implementation of the Earned Value Management technique, tracking this value enables for the prediction of the final outcome for the project. This also helps in monitoring the cost and the schedule deviations within the project.

9.5.8 Roles

Role	*Responsibility*
Project Sponsor	• Ensure funding and approval for the project. • Ensure that the project has strategic value. • Clearly communicate changes and objectives. • Ensure availability of resources.
Project Manager	• Responsible for planning the budget, estimating total costs and monitoring money spent. • Ensure the project is completed successfully, in time and within budget. • Responsible for monitoring and navigating deviations and risks. • Ensures that project objectives are achieved. • Maintain relationships and communication with stakeholders and the project team. • Manage and sufficient allocate resources for each project activity.
Team Member	• Ensure that all the assigned activities are completed in time and as required. • Manage and use resources conservatively. • Document all the processes. • Account for costs used in project activities. • Provide different expertise on project matters. • Collaborate and find effective ways to ensure tasks are completed within time.

9.4.8 Documents

Project Plan – The project plan documents the project cost management that is the allocation, monitoring and managing project costs.
Change requests – Used to document the implementation of change control systems and any requested changes to the project.
Progress report – Describes what the team has achieved during a certain period of time and what still needs to be done.

9.5 Appendix F: Procurement Plan

9.5.1 Procurement Requirements

Procurement requirements entail certain needs and criteria that must be fulfilled when gathering goods and services for a project. All the necessary equipment needed to build to software is freeware, they do not require any payment.

However, when it comes to publishing it or hosting the software, we might need to consider certain cloud services which includes:

- Microsoft Azure
- Amazon Web Services
- Google Cloud

9.5.2 Requirements

If our company needs any cloud-based utilization, we will need to gather the necessary technologies:

Item	Description	Reason	Quantity	Quantity
Cloud Computing Service	A cloud service that will allow us to store all the documentation in multiple storages.	In the event of a future update to our software solution, we need to collaborate in web-based storage meaning that all the documentation will be stored safely across different devices.	1 Server	ZAR 10 000 to ZAR 20 000

9.5.3 Market Research

Item	Supplier	Offer	Price	Availability
Microsoft Azure	Microsoft	1 x 2 core CPU 3.5 GB RAM, 10 GB Storage	ZAR 120 000	Yes

Amazon Web Services Document DB	Amazon	1 x 64 CPU 488 GiB db	ZAR 140 000	Yes
Google Cloud	Google	15GB	Free	Yes

9.5.4 Assumptions

- **Microsoft Azure** consists of a comprehensive suite of cloud services; it is considered good because it is part of Microsoft, and it is similar to AWS which makes it a viable choice.
- **Amazon Web Services** is the best alternative because of its largest market share, meaning that it is reliable. It has a wide range of offerings thus making it a preferred choice for many organizations.
- **Google Cloud** offers a robust set of cloud services, but it lacks reputation as well as a wide range of offerings.

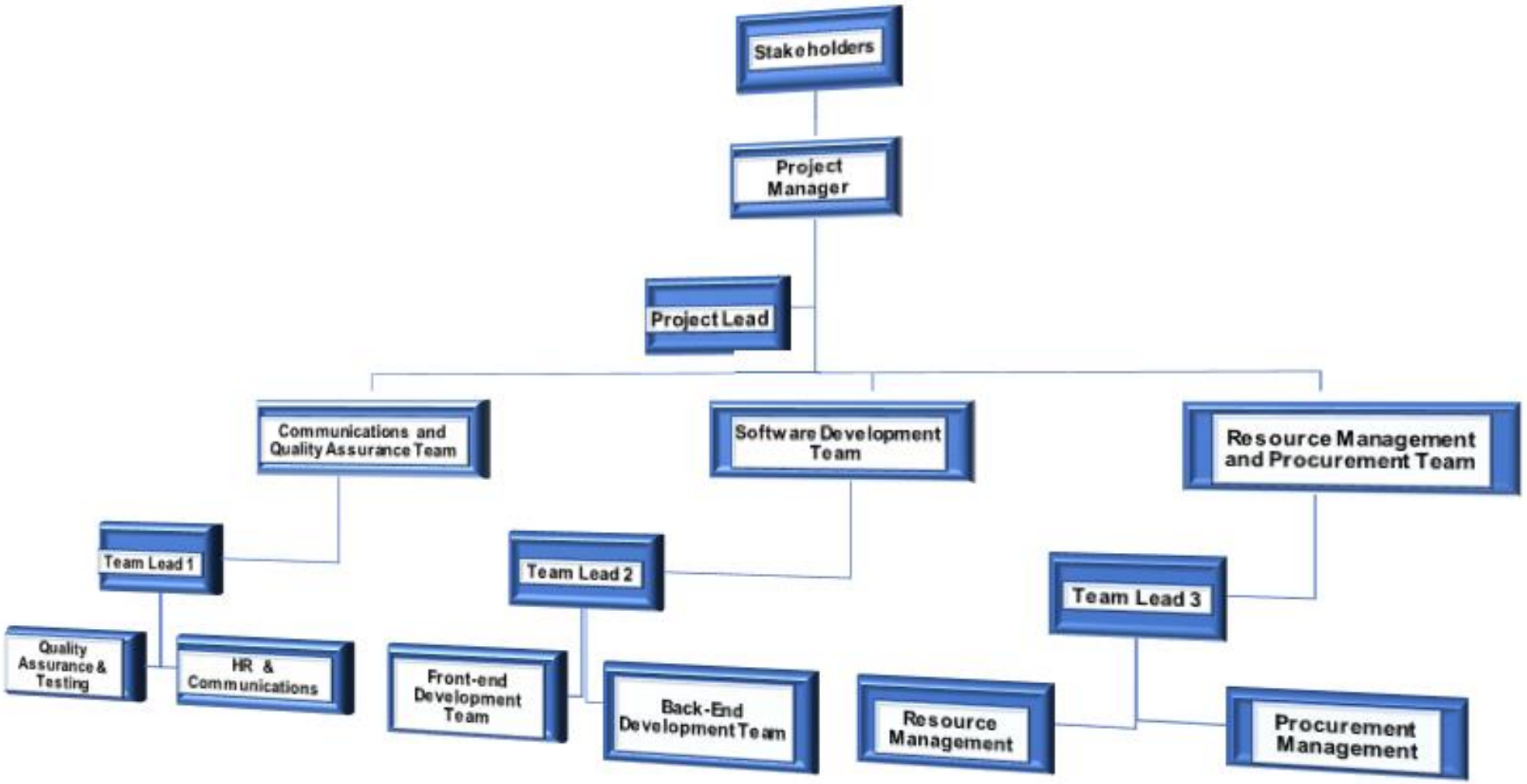
9.5.5 Constraints

- **Microsoft Azure:** offers a wide range of services making it complex for us to choose from, the learning curve of it can be steep. It consists of extensive documentation, and it is harder to navigate.
- **Google Cloud:** Google Cloud may be considered less viable due to its relatively lesser reputation compared to AWS and Azure. The limited number of service choices within the Google Cloud ecosystem can also be a drawback. Additionally, the pricing structure of Google Cloud, especially for larger and faster storage options, may be perceived as uneven, potentially resulting in higher costs compared to other providers. However, it's important to note that these factors might not necessarily apply to all use cases, and organizations should evaluate their specific requirements and pricing models to make an informed decision.
- **Amazon Web Services**: The main limitation associated with AWS is the challenge of selecting the appropriate service for a specific project. This arises from the vast number of services available within the AWS ecosystem. The abundance of choices can lead to a situation where users may feel overwhelmed, and there is a risk of inadvertently selecting a service that may not be the best fit for their specific requirements. It is crucial to carefully evaluate and choose the most suitable service to ensure that it aligns effectively with the intended purpose and meets the desired needs

9.6 Appendix G: Resource Plan

9.6.1Organizational Structure Chart

After identifying the people and skills needed for the project, the following detailed organizational structure was adopted.



9.6.2 Description of the Organizational Structure Breakdown

The organizational structure is broken down into 3 manageable teams, each team with a respective team lead reporting directly to the project lead. The project team reports to the project manager who in turn deliberates with the stakeholders. This structure ensures accountability and makes the management of tasks easy.

The project team was broken down into the following 3 teams with 1 project lead (Gerni Vesser):

Communications and Quality Assurance Team led by Oarabile Makatise.
Software Development Team led by Daniel Coetzee.
Resource and Procurement Team led by Keagan Badenhorst.

9.6.2.1 Roles within the organizational structure

Stakeholders: Responsible for developing and defining goals to achieve the set goals.

Project Manager: Responsible for managing the production of the required deliverables, this includes managing the project team and assuring the stakeholders about the progress of the project.

Project Lead: Overlooks all the respective teams, and reports directly to the project manager on all tasks and their progresses as dealt with by the respective 3 teams.

Team Lead 1,2,3: Responsible for overlooking all the activities to the team which they are assigned, reports directly to the project lead.

9.6.3Labor

Role	Number	Responsibilities	Skills	Start Date	End Date
Project Sponsor	1	Maintaining project budget Ensuring resource availability Keeping updated on project progress	Communication OOP Java C# Commitment	*17 Jul 2023*	*22 Nov 2023*
Project Leader & Project Manager	2	Effective stakeholder communication Strategic project planning and scheduling Efficient risk management Collaboration and motivation within the team	Leadership Communication Decision-making Problem-Solving Time management	*17 Jul 2023*	*22 Nov 2023*
Frontend Developers	2	Structuring and designing user interfaces Optimizing the layout design Iterating and improving designs based on user feedback. Implementing responsive design for different devices	C# .NET Framework Proficiency in web development. Knowledge of database technologies such as SQL Server. Proficiency in object-oriented programming (OOP)	*17 Jul 2023*	*22 Nov 2023*
Backend Developers	2	Analysing and troubleshooting code and data to identify areas for improvement. Collaborating with team members to enhance code quality and performance. Collaborating with team members to enhance code quality and performance.	SQL Familiarity with fundamental design principles. Strong problem-solving abilities. Proficiency in object-oriented programming (OOP)	*17 Jul 2023*	*22 Nov 2023*

9.6.4 Equipment

Role	Number	Purpose	Specifications	Start Date	End Date
Desktop PC	19	Developing or programming project management software	Windows 10 or 11 16GB RAM	*17 Jul 2023*	*22 Nov 2023*

		solution in this case COBIT Solution	Intel Core i7 processor 500GB Storage capacity		
Work Environment (PC Labs)	5	Creating a quiet and conducive environment for developers and other team members to work in.	8x8 m room Aircons Fast Internet Air conditioning units Fast and reliable internet connectivity	*17 Jul 2023*	*22 Nov 2023*

9.6.5 Assumptions

- All team members have computer access.
- All team members have computer access.
- Team members are available at least once a week for team meetings.
- Each team member has access to necessary software and tools.
- Team members have a designated communication platform or collaboration tool for efficient interaction.
- The team operates within a designated work schedule or agreed-upon availability windows.
- The team has access to adequate documentation, knowledge bases, or resources to support their work.
- The team operates under a defined organizational structure with assigned roles and responsibilities.

9.6.6 Constraints

- Loadshedding might delay the working process.
- Team members may have varying levels of experience and expertise, which can impact task assignments and project outcomes.
- Connectivity issues or unstable internet connections can hinder effective collaboration and communication among team members.
- It is not feasible for all team members to collaborate in person.
- Attendance of all team members at meetings in person may not be possible.
- There may be discrepancies in the level of equipment available to team members for resource-intensive processing or coding.

9.7 Appendix H: Communications Plan

Communication requirements

9.7.1 Stakeholder list

Stakeholder Name	*Stakeholder Role*	*Power*	*Interest*
Phenyo Modisane	Main Client	High	High
Neels Kruger	Main advisory and regulating entity	Medium	High
North-West University	Background organization	Low	Low
Tina Van Nierkerk	Project Manager	High	High
Gerni Vesser	Project Lead	High	High
Oarabile Makatise	Team Lead 1	Medium	High
Daniel Coetzee	Team Lead 2	Medium	High
Keagan Badenhorst	Team Lead 3	Medium	High
Daniel Coetzee	Front-End Manager	Medium	High
Keagan Badenhorst	Back-End Manager	Medium	High
Front-End Team	Front-End development Team	Low	High
Back-End Team	Back-End development Team	Low	High
End-users	Individuals whom the software was developed.	Medium	High

9.7.2 Stakeholder Requirements

Stakeholder Name	*Stakeholder Role*	*Required Information*
Phenyo Modisane	Main Client/Sponsor	• Progress report. • Update on changes or additions of project functionalities. • Any other related information concerning the project.
Neels Kruger	Main advisory and regulating entity	• Progress report. • Updates on any challenges and deviations related to the project.
North-West University	Background organization	• No information will be required by this stakeholder.
Tina Van Nierkerk	Project Manager	• Progress report from the project lead. • Updates on any challenges and deviations related to the project. • Feedback from client. • Solutions to identified challenges.
Gerni Vesser	Project Lead	• Progress reports from the respective team leads about their respective departments and associated tasks. • Feedback from client and project manager. • Updates on any challenges and

		deviations related to the project • Solutions to identified challenges.
Oarabile Makatise	Team Lead 1	• Progress report from the quality assurance and communications management team. • Feedback from the Project Lead and Project Manager. • Updates on any challenges and deviations related to the project • Solutions to identified challenges
Daniel Coetzee	Team Lead 2	• Progress report from the software development team. • Feedback from the Project Lead and Project Manager. • Updates on any challenges and deviations related to the project • Solutions to identified challenges
Keagan Badenhorst	Team Lead 3	• Progress report from the resource and procurement management team. • Feedback from the Project Lead and Project Manager. • Updates on any challenges and deviations related to the project • Solutions to identified challenges
Daniel Coetzee	Front-End Manager	• Progress report from the front-end development team. • Feedback from the Project Lead. • Updates on any challenges and deviations related to the project • Solutions to identified challenges
Keagan Badenhorst	Back-End Manager	• Progress report from the back-end development team. • Feedback from the Project Lead. • Updates on any challenges and deviations related to the project • Solutions to identified challenges
Front-End Team	Front-End development Team	• Feedback from the front-end manager. • Solutions to identified challenges
Back-End Team	Back-End development Team	• Feedback from the back-end manager. • Solutions to identified challenges
End-users	Individuals whom the software was developed.	• User Manuals • Release date of the software for official use and user testing

The following table summarizes various stakeholders, the communications required; the source of the communication or producer of the communication, the format of the communications and the frequency of communications.

Communications Summary				
Stakeholders	*Communications Name*	*Delivery Method/Format*	*Producer*	*Due/Frequency*
Sponsor and Project Manager	Weekly Progress report update	Hard Copy and short meeting	Gerni Vesser	Thursdays at 9 a.m.
Project Lead, Project Manager and Development Team	Weekly development team Progress report update	Meetings	Daniel Coetzee and Keagan Badenhorst	Mondays at 2 p.m.
Project Lead, Project Manager and Development Team	Issues Regarding the project	Stand-ups	Daniel Coetzee and Keagan Badenhorst	Daily
Affected Employees	Project Announcements (if any)	e-Mail, Discord or Whatsapp Messaging	Oarabile Makatise	Fridays at 3 p.m.
Project Team	Weekly progress report	Short meeting	All team members	Fridays at 4 p.m.

Escalation procedures for resolving issues:
Issues should be resolved as soon as they are experienced. When members have trouble resolving issues, they should bring them to the attention of their team leads. The team leads would then escalate it to the project lead. If an issue is of high importance, critical, and extremely time sensitive, it should be brought to the attention of the project manager. And if the project manager is unable to resolve the issue, she should bring it to the project steering committee or the appropriate senior management.

Revision procedures:
Revisions to this plan have to be approved by the project manager, and clearly marked at the top with a revision number and date.

Project Communications
The following table summarizes all communications that will take place during the course of the project.

Communication	*Audience*	*Goals*	*Schedule*	*Format*	*Responsibility*
Kick-off Meeting	All project stakeholders	• Introduce the project. • Introduce the respective stakeholders.	One-time event	Meeting or presentation	Project leader and Project manager
Steerco Meeting/ Steering Committee	Steering Committee (Project Leader, Project Manager, Sponsor, Client and other required stakeholders).	• Review project progress, assess its performance and address any related issues. • Sign-off on the functional and technical specifications.	Bimonthly	Meeting	Project leader and Project manager
Progress Reports	All project stakeholders	• Update on the current progress, issues and risks	Weekly	Report	Project manager
Team Meeting	Entire project	• Every project	Weekly on	Short Meetings	Project Lead

	team	team communicates progress on assigned tasks, issues as well as solutions to identified issues.	Fridays at 4 p.m.		
Team Stand-up	Development teams (Front-end and back-end)	• Assign responsibilities for development team	Daily	Stand-up meetings usually not longer than 20 minutes	Project Lead
Milestone meeting and review	All project stakeholders	• Review the progress report, deliberate on the project milestone's progress and implementation. • Decide on what steps next to take	At the beginning of every milestone	Meeting and demonstration	Project manager
Final Meeting	Entire project team	• Review the project plan process, the challenges faced and lessons learnt. • Establish the project successes and failures. • Provide recommendations for future projects.	At the end of the project	Meeting	Project manager

Communication	*Audience*	*Format*	*Responsibility*	*Notes*
Edit the business case	Client/Sponsor	Business Case Template	Project leader and Project manager	Edit the business case to ensure all the requirements of the project are met.
Edit the Feasibility Study	Client/Sponsor	Feasibility Study template	Project leader and Project manager	Edit the feasibility study to outline the feasibility of ensuing the project and selected solution to identified problem.
Create a communication plan	Client/Sponsor	Communication plan template	Project leader and Project manager	Create a communications plan that will be effective in ensuring communications between the stakeholders of the project.
Create a Financial Plan	Client/Sponsor	Financial Plan Template	Project leader and Project manager	Create a Financial Plan that that takes into account the project constraints.
Edit Project Plant	Project Team and Client/Sponsor	Project Plan Template	Project leader and Project manager	Edit and establish a project plan to guide the project execution.
Create Resources Plan	Client/Sponsor	Resources Plan Template	Project leader and Project manager	Create a resources plan to manage the resources within a project.
Create Procurement Plan	Client/Sponsor	Procurement Plan Template	Project leader and Project manager	Create a procurement plan to manage the process of finding and selecting a vendor.
Create Quality Plan.	Client/Sponsor	Quality Plan Template	Project leader and Project manager	Create a quality plan that can be viewed by the client.
Back-end development	Project Team and Client/Sponsor	Meetings and stand-ups	Project leader, Project manager, back-end lead and back-end development team	Work on the back-end of the solution and provide project progress to the back-end lead. Take the feedback from project lead to work on solutions.

Front-end development	Project team and Client/Sponsor	Meetings and stand-ups	Project leader, Project manager, front-end lead and back-end development team	Work on the front-end of the solution and provide project progress to the front-end lead. Take the feedback from project lead to work on solutions.

9.7.1 Assumptions:

The following assumptions are made with regards to the project life cycle:

- Everyone understands communications.
- Everyone has the proper technology to communicate including internet access.
- Everyone will pitch for meetings and if not, forward apologies.
- Everyone understands what they need to do.

9.7.2 Constraints

The following constraints are made with regards to the project life cycle:

- The method of delivering communications should allow everyone to be reached.
- Limited internet access and data cap.
- Technology used for communication is inexpensive.

9.7.3 Activities

- Project progress report.
- Feedback regarding the project.
- Stands-ups and short meetings.

9.7.4 Roles

Stakeholder Name	*Stakeholder Role*
Phenyo Modisane	Client/Sponsor
Neels Kruger	Main advisory and regulating entity
North West University	Background Organization
Tina Van Niekerk	Project Manager
Gerni Vesser	Project Leader
Daniel Coetzee	Front-End Lead
Keagan Badenhorst	Back-End Lead
Back-end team	Back-end development team
Front-end team	Front-end development team

9.7.5 Methods, Documents, and Technology

The following methods, documents and technology are used in the project life cycle:

Methods:

- Meetings (video conferencing or in-person)
- Stand-ups

Documents:

- Hard copies
- Emails

Technology:

- Whatsapp
- Discord
- Microsoft OneDrive

9.8 Appendix I: Meeting Minutes

Below are some of the minutes of meetings during the project life cycle;

Minutes of the Meeting on the 22nd March 2023

The meeting started at 13:00 pm on the 22nd March 2023 and was attended by Pheny Modisane (The Client), Prof. Neels Kruger, Tina Van Niekerk , Gerni Vesser, Given Mnisi, Keagan Badenhorst and Daniel Coetzee. The minutes were recorded by Oarabile Makatise.

The meeting commenced with the project manager, Tina introducing the client Phenyo Modisane to the team. Upon introductions, the project leader Gerni Visser commenced the meeting by asking the Client, Phenyo clarity on the system to be worked on. Phenyo explained the functionalities of the software with the help and emphasis from Prof Neels Kruger –the adoption and necessity of the COBIT19 framework was also highlighted. Phenyo demonstrated how the system works, from the goals cascade, 40 generic project processes, IT goals and business goals to mention a few.

The client explained to the team on the added functionalities he wants to be incorporated in the software, as well as the bugs and improvements the team needs to address on the current system. A list of requirements to be implemented from the team is due to the client and project manager for review. Finally, Prof Neels gave advice and pointers on the business case, the need to convince an organization to use the software and to sell the idea was emphasised. The meeting concluded, with the team satisfied with the clarity from the client. The business case was to be redone with more clarity on software.

COBIT
COBIT MEETING AGENDA

Date: 28 March 2023
Time: 09:00
Location: Online (Discord)
Parties Involved: COBIT Members; Tina Van Niekerk (PM)

AGENDA

TOPIC	Responsible Person
Welcome	Gerni Visser
Minutes of the Previous Meeting	Oarabile Makatise
Progress on the Business Case	Gerni Visser
Commencement of Feasibility Study	Gerni Visser
Project Methodology and Time Management	Gerni Visser
Updates/Feedback From Members	Gerni Visser
Any Other Business	
Closing	Gerni Visser

Minutes of the Meeting on the 28th March 2023

The meeting started at 09:00 on the 28th March 2023 and was attended by Gerni Vesser, Given Mnisi, Keagan Badenhorst and Daniel Coetzee. The minutes were recorded by Oarabile Makatise.

The meeting commenced with the project leader welcoming all the members. The project leader then proceeded to give an update of the brief meeting the he had with the project manager, Tina. The project leader informed the team that a power point presentation is expected on the 3rd of April 2023 to the client and the Project leader and later on the same

day to Prof Neels. The project leader further emphasised on having the business case completed by Thursday, 30th March 2023 to give the project manager time to review the business case. This is also done to allow time to fix and redo any aspects of the business case not in order.

Minutes from the previous meeting were shared with the team and adopted. The main proceedings of the day ensued – the project leader gave an update on the progress of the business case, looking into each part which was assigned to respective members and discussing with them on the final touches of their respective parts. The project leader thanked everyone on their progress thus far and highlighted the need to begin compiling the feasibility study as he had already started looking into it. Final edits and the layout of the business case were also highlighted. Each member tasked to look into the parts they were assigned to and do the final corrections.

The meeting adjourned with no further matters to be discussed. The next meeting scheduled for tomorrow, 29 March 2023 upon confirmation by the project leader.

Minutes of the Meeting on the 29th March 2023

The meeting started at 14:00 on the 28th March 2023 and was attended by Gerni Vesser, Given Mnisi, Keagan Badenhorst and Daniel Coetzee. The minutes were recorded by Oarabile Makatise.

The meeting commenced with the project leader welcoming all the members. The project leader informed the team of communication with the project manager. The communication entailed having the project manager go through the business plan while it is going finalizations. The project leader proceeded to address the finalization of the business plan as the decided deadline of its completion is the 29th March 2023. It was observed that the business case is already done; it is only left with a few final edits, proof reading and finalization.

Keagan and Daniel were assigned to work on the solution rating of the options adopted on the feasibility study. Oarabile was to finish off with the editing and layout of the business case. All members were asked to go through the business case – proof read each other's work. With no further business to discuss, the meeting adjourned.

COBIT CONSULTANTS PRESENTATION

DATE: 18 APRIL 2023
Time: 14:10
Location: Online (Discord)
Parties Involved: COBIT Members; Tina Van Niekerk (PM); Prof. Neels Kruger, Phenyo Modisane, John Klerck

Gerni welcomed all the stakeholders involved. Following this, the project leader went on to present the project. Gerni started by presenting the outline of the presentation. The Cobit19 framework was presented, the business problems, opportunities identified and how the different solutions were compared to each other formed the outline of the presentation. The development team was presented to the client liaison and other parties present beside the development team.
Following the presentation of the project leader, Gerni, the Cobit 19 is a framework to align IT processes with IT business strategies. It is a great framework but with limitations and cons

but can greatly improve the affectivity of organizations when implemented. Problems associated with the framework include the fact that it is complexity, prone to errors, time consuming and quite expensive were addressed. What the COBIT CONSULTANTS propose in developing the modified COBIT framework is to improve the affectivity of IT systems, make IT auditing process quicker, easier and cheaper, and ultimately, offer organisations competitive advantage. Three alternative solutions were discussed following the adopted business requirements used to compare the three solutions. The first solution entailed the continuation on the existing Cobit system; the second solution was to develop a new system from scratch and lastly, the third solution, discard and use 3rd party software to provide consultation services. The first which entailed the continuation of the existing cobit system was adopted. The score for this system was higher than that of the other solutions considered hence it was adopted.

The team had spoken to Tlhogi on hosting the system on the NWU. Prof. Neels advised the team that Tlhogi is not the relevant party to talk to regarding hosting the software on NWU. A meeting is to be scheduled with Prof. Neels to discuss on whom to talk to regarding the hosting of the software. Prof Neels emphasised that the team should have a working project to be tested as soon as possible. The development team should start fixing the bugs on the existing system and ask the financial department to start playing with it and test its functionality. Overall, the team should start working on the project as soon as possible and have guidelines (gantt charts) to show the project progress and inform when it will be ready for use.

Mr Phenyo further advised the team to look into free auditing software e.g ITIL 2007 to avoid all the red tape involved in getting help from 3rd party software organisations offering consultation services similar to the COBIT framework. The presentation of the project was a success and the team was to deliberate on all that was suggested in the presentation. Presentation adjourned.

COBIT CONSULTANTS

COBIT CONSULTANTS MEETING AGENDA

Date: 21 APRIL 2023
Time: 11:30
Location: Online (Discord)
Parties Involved: COBIT Members

AGENDA

Welcome	Gerni Visser
Minutes of the Previous Meeting	Daniel Coetzee
Next Phase in Project Development	Gerni Visser
Project breakdown and task delegation	Gerni Visser
Meeting with Prof. Neels	Gerni Visser
Any Other Business	Gerni Visser
Closing	Gerni Visser

Minutes of the Meeting on the 21st April 2023

The meeting started at 11:30 on the 21st April 2023 and was attended by Gerni Vesser, Given Mnisi, Keagan Badenhorst and Daniel Coetzee. The minutes were recorded by Oarabile Makatise.

The meeting commenced with the project leader welcoming all the members. Minutes of the previous meeting were read by Daniel Coetzee and accepted by all members. The main objective of the meeting was to discuss the project plan and discuss way forward following the presentation of the 18th April 2023. The layout of the project plan was discussed and the project leader delegated tasks for each member. The project leader is to deliberate with the project manager on what phases to adopt for the project development life cycle. The first phase and the layout of activities will be handled by Gerni, Given and Daniel. The second phase which will follow from the first phase will be done by Oarabile and Keagan.

The project leader has a deadline to complete the phases this weekend (21April-23 April). Activities will be dealt with during the next weekend. The deadline for the first phase is Friday, 28th April 2023. Following the presentation on the 18th April 2023, Gerni and Oarabile are to schedule a meeting with Prof. Neels next week as per request by Prof during the presentation. Some aspects to be discussed at the meeting with Prof. Neels include, talking to the relevant party in the NWU IT department regarding the hosting of the software, establish communication with other departments (accounting*) to test the software, furthermore the project leader wants to ask Prof on what additional documents will be needed for the project.

The meeting was adjourned with no further items to be discussed, the next meeting will be held next week Friday, 28th April 2023.

COBIT CONSULTANTS MEETING

Date: 26 APRIL 2023
Time: 13:00
Location: Hons Lab
Parties Involved: COBIT Members

Minutes of the Meeting on the 26th April 2023

The meeting started at 13:00 on the 61th April 2023 and was attended by Tina Van Niekerk, Gerni Vesser, Given Mnisi, Keagan Badenhorst and Daniel Coetzee. The minutes were recorded by Oarabile Makatise.

The meeting commenced with the project manager welcoming all the members. Feedback on the presentation was given by the Project manager –Tina Van Niekerk who was happy with the team's work and congratulated them on a job well done. The project plan progress was discussed, Given and Daniel were given the task of completing the activities by Friday. The project manager gave input on the project plan and informed the team that they should not rush the project plan since it is the exam. Following this, Tina informed the team that she had requested the code for the solution from Phenyo and has not received feedback yet. As soon as the code is presented, the team will have 3 weeks to fix all the bugs and modify the reporting functionality. The project needs to be ready for testing.

The project manager emphasized that Phenyo's permission should be requested before giving out the solution for testing. Furthermore, the team needs to talk to the IT department regarding the hosting of the solution. The person to talk regarding making arrangements to communicate with the IT department is Jessica from Faculty. Jessica should be asked to make arrangements to speak to Cellie of the IT department. The goal is to have the solution hosted by the IT department, plan B would be to use Azure hosting plans. The team was

requested by the project manager to think logically about the aspect of maintenance – the IT department or Phenyo could potentially be in charge of maintaining the system. Finally, the project manager requested the team to prepare questions to ask Cellie regarding hosting the system on the NWU.

With no further items to discuss, the meeting was adjourned.