
**Swinburne University of Technology**
**INF30033**
**IT Program and Project Management**

# ASSIGNMENT 3

# *Project Proposal*

**Thursday 10:30 Team 1:**

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# 1. Introduction to the VCAA Project Proposal

## 1.1 Overview of VCAA

The Victorian Curriculum and Assessment Authority (VCAA) is an independent statutory entity accountable to the Victorian Minister for Education. Serving both government and non-government educational institutions, the VCAA plays a pivotal role in overseeing educational assessments and curriculum frameworks. In 2019, it provided services to over 210,000 students, highlighting its substantial influence on education across Victoria.

## 1.2 Current Situation and Challenges

At present, the VCAA employs an Oracle database within a Windows environment to manage extensive student data. This system, however, confronts several challenges:

- Data management inefficiencies: As VCAA deals with an expanding student population, the existing structure has drawbacks in scalability, which leads to delayed response time and an increase in maintenance demand.
- User experience defects: The current student portal is not highly modern, which potentially engenders difficulty in engagement. Particularly, the lack of a mobile-responsive interface significantly hinders accessibility for a growing number of students reliant on mobile devices.
- Administrative burdens: Certain administrative processes within the VCAA are manually controlled, which is not only labour-intensive but also is susceptible to errors. Hence, the shift towards automation is necessary to boost overall efficiency.
- Security and compliance risks: The protection of sensitive student information is crucial, which urges for the necessity of enhancements in data security measures to encounter breach risks. Additionally, the VCAA must continuously adapt to evolving data protection policies to ensure compliance and maintain institutional credibility.
- Limited analytical capabilities: There exists a notable potential to harness data analytics to draw insights on educational patterns and student performance. Currently, VCAA lacks the necessary tools to effectively analyse the huge amount of data it accumulates.

## 1.3 Opportunity Statement

Internet of Things (IoT), cloud computing, big data processing, and artificial intelligence are leading-edge technologies that are rapidly transforming globally (Chen, 2020). Several opportunities exist to enhance the VCAA Student Portal by leveraging modern technologies will significantly improve the portal's functionality. The growing social acceptability and adoption of e-learning, particularly online exam solutions, establishes an opportunity to incorporate these solutions into the portal. By developing the portal, it can foster the use of innovative technologies in education, improving the overall learning experience for students. Furthermore, one benefit could be that students can streamline processes such as exam enrolment and information dissemination, which reduces effort and simultaneously increases efficiency. Hence, this enhancement is predicted to significantly improve data management

efficiency and information dissemination, thereby enhancing the overall user experience for both students and administrators.

### 1.4 Project Proposal

This proposal highlights a comprehensive methodology to address the issues, with a clear move towards enhancing operational effectiveness and educational support, aligned with VCAA's enduring mission to deliver decent educational services:

- Focuses on building the basic infrastructure of the portal, comprising web application, website development, student login mechanisms, data input functions for student personal or enrolment details.
- Extends functionality to include personal exam timetables, a notification system, and advanced administrative functionalities.
- Culminates in the integration of final results processing and publication capabilities, completing the collection of services provided by the portal.

The project is designed to meet the high standards embedded by the Victorian government for data handling, accessibility, ensuring compliance throughout its overall development and implementation.

### 1.5 Project objectives

The key goal of VCAA is to develop its digital assessment services by creating a comprehensive student portal. This is designed to enhance data storage and maintenance procedures, elevate user interface design, and furnish students with smooth access to personal details, enrolment information, examination timetables, and final results through progressive developmental phases.

- Streamline assessment process: Minimise the need for manual interventions by automating the evaluation procedures, thus making the process more efficient.
- Implement a scalable digital platform: Develop a robust platform which has the capability of handling significant user loads and future expansion without degrading in performance.
- Enhance accuracy and timeliness: Boosts the accuracy and timeliness of assessments to ensure that students and educators can access up-to-date information.
- Implementing robust privacy protections to safeguard user information against unauthorised access or breaches.

## 2. Project Scope Management

### 2.1 Product description

The VCAA Student Portal is a pioneering digital initiative, which is designed to revolutionise the educational experience for senior secondary students across Victoria. This modern platform is distinguished by its user-centric features, such as personalised dashboards,

real-time notifications, enrollment information, examination timetables, and academic results. The design offers full mobile optimization, supporting the modern student's preference of accessing educational materials via mobile devices. Based on a credible report about the tendency of teenagers using mobile devices, it indicates that 90% of Australian teenagers own mobile phones, often upgrading to new models frequently (*9 in 10 Aussie Teens Now Have a Mobile (and Most Are Already on to Their Second or Subsequent Handset) - Roy Morgan Research*, 2016). This approach not only leverages the prevalent use of mobile technology among students but also escalates the portal's accessibility, making it an essential tool in the contemporary educational world.

The portal's mobile responsiveness allows students to manage their educational resources flexibly, which thus supports VCAA's aim to foster an adaptive, student-centred learning environment. To facilitate this, the portal updates student personal and enrollment details in real time from school databases. This feature offers students ease of access to their information and cooperates with school administrators or the VCAA support team to request necessary changes, thus improvising the practice of utilising printed forms for data updates. Furthermore, the portal allows school administrators to directly make necessary alterations to student data, and hence improving operational efficiency.

An essential functionality of the portal is its capability to generate personalised examination timetables for each student based on their enrolled subjects, which are supplemented by a notification system that alerts students regarding upcoming exams or updates. This feature not only aids in academic management but also contributes to a stress-relieved academic experience for students. Moreover, the portal ensures that vital academic information, such as ATAR scores and detailed grade reports, is accessible, which is important for student to create academic plans and track their progress.

While the portal offers several advantages, it also faces challenges related to ensuring equitable access for all students, given the discrepancies in technological resources across multiple schools. In addition, there are huge concerns that the accuracy of digital assessments could be compromised by technical issues such as server downtimes or bugs, and challenges in standardising assessments across different devices and digital environments, potentially having a significant impact on the overall consistency.

Therefore, the VCAA Student Portal is not just a technological advancement but it is also a strategic development designed to create a more engaging, efficient, and supportive educational environment. By complying with Victoria's Federal Standards, the portal highlights VCAA's commitment to responsible data management, and the capability in dealing with sensitive information in a secure and compliant manner. This dual focus on innovation and adherence to standards showcases VCAA's substantial dedication to maintaining a safe and dynamic educational environment.

## 2.2 Scope statement

| Project | Project Manager | Date |
|---|---|---|
| VCAA Student Portal | Christopher Perry | 24 August 2020 |

| Scope Description | |
|---|---|
| In Scope | Out Scope |
| • Personalised student dashboards with access to enrolment details, examination timetables, and results.<br>• Mobile optimization to ensure access on various devices.<br>• Real-time notifications and alerts for academic schedules and updates.<br>• Administrative functionalities for user management and data updates.<br>• Robust security measures to protect student data.<br>• Compliance with Victorian government standards for data and privacy. | • Integration with non-educational third-party services.<br>• Real-time chat functionalities for student support.<br>• Advanced analytics features for predictive modelling and trend analysis (to be considered for future phases). |

| Acceptance Criteria |
|---|
| • The portal must support all listed functionalities in scope by the end of the development phases.<br>• User interface must be tested and approved by a focus group of students and administrators.<br>• System must pass security audits and comply with all specified regulatory standards.<br>• Project completion within the agreed budget and timelines. |

| Constraints |
|---|
| • Fixed budget allocated for the development and rollout of the portal.<br>• Tight timelines to match the academic calendar for implementation.<br>• Limited availability of technical resources specialising in the required technologies.<br>• Dependence on third-party vendors for certain technologies and services. |

| Assumptions |
|---|
| • All users can access through a stable and reliable website .<br>• Availability of all necessary resources (financial, human, technical) as planned.<br>• Cooperation and timely feedback from all stakeholders throughout the project.<br>• Regulatory environment remains stable with no significant changes to data protection laws. |

## 2.3 Work Breakdown Structure [WBS]

Prior to the development of the Work Breakdown Structure (WBS) of the student portal project by VCAA, new leadership roles were assigned within the team, enhancing the project's functional structure.

Xuan Son Nguyen Operational Team Leader

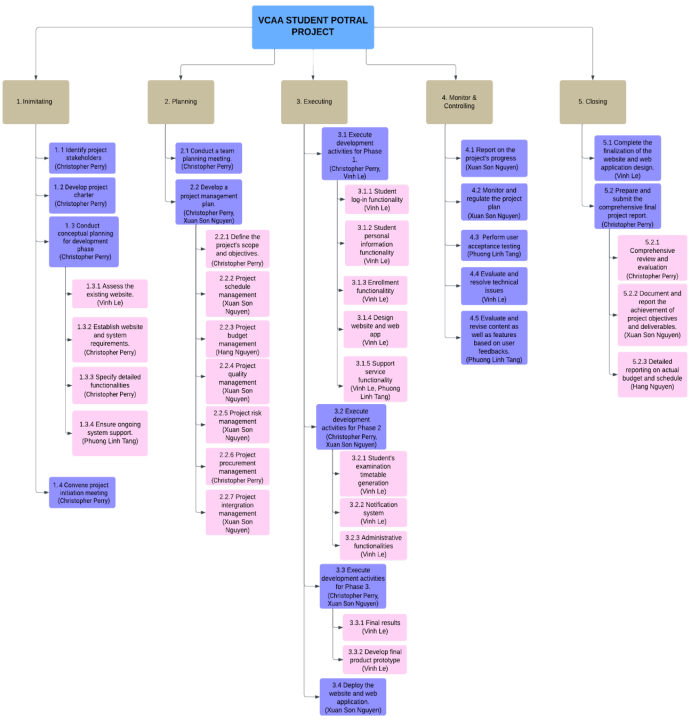
Hang Nguyen Financial Team Leader

Vinh Le Technical Team Leader

Phuong Linh Tang Customer Service Team Leader & Support Team Leader

This project's work breakdown structure (WBS) uses a top-down approach that organises the project into a hierarchical framework by breaking it down into smaller, manageable elements. (Siami-Irdemoosa et al, 2015, p. 86). Incorporating the PMBOK methodology, which outlines the project life cycle into five primary stages—**Initiating, Planning, Executing, Monitoring & Controlling, and Closing**—provides a robust framework that covers all tasks outlined in the project scope (Matos & Lopes, 2013, p. 787-794). A meticulously crafted and structured Work Breakdown Structure (WBS) is critical for the successful execution of the VCAA student portal project. The integration of the PMBOK methodology, combined with cutting-edge technological tools and comprehensive stakeholder engagement during the planning stage, markedly enhances the probability of the project's success and aids in the effective mitigation of challenges. This strategic utilisation of the WBS enables the early identification of potential hurdles, fostering a more streamlined and efficient implementation process.

The below Work Breakdown Structure (WBS) includes several key stakeholders- the project manager, the project team leader from each functional team, and any relevant stakeholders within the VCAA organisation. These stakeholders will work together to define and execute the project's five main stages.



*Refer to **Appendix 1**: Project's work breakdown structure (WBS)*

## 2.4 Include all Deliverables

A deliverable is any distinct and verifiable product, result, or capability essential for completing a specific process, phase, or project. This includes not only the primary outputs but also supplementary results such as project management reports and documentation. Deliverables can be outlined in broad terms or described in extensive detail, depending on the project's requirements (PMBOK Guide, 2017, p.154).
The table below lists all the major deliverables for the VCAA Student Portal project:

| Deliverable Name | Description | Assignee(s) |
|---|---|---|
| Determine the requirements and needs of the users for the project. | Assess the existing student portal by collecting insights from the sponsor, feedback from end-users, and advice from professional web and app developers. This process is aimed at determining both functional and non-functional requirements. | School administrators<br>Stephan Ammann<br>VCE/VCAL students<br>VCAA - sponsor |
| Project Proposal | A comprehensive project management plan that outlines the project's objectives, scope, budget, quality controls, risk management strategies, procurement procedures, and integration management processes. | Christopher Perry<br>Sophia Indja<br>Julia Tewkesbury<br>VCAA – sponsor<br>Software Developer |
| Project procurement contract | Signed contracts finalised between VCAA Student Portal team and chosen suppliers | Christopher Perry<br>Julia Tewkesbury<br>Tech Suppliers |
| User Interface Design | A detailed design document for the website and web app of user-friendly interface for student access to academic information and expected performance of all the required functionalities. | Design Team<br>User Experience Experts<br>Stakeholders |
| Phase 1: Initial Portal Setup | Development of the web app and website, including basic student login and personal details functionality.enrolment details, with support functionality | Julia Tewkesbury<br>Technical Team<br>Design Team |
| Phase 2: Enhanced | Development of personalised | Technical Team |

| | | |
|---|---|---|
| Functionality | examination schedules, alert systems, and administrative functionality. | Julia Tewkesbury<br>Customer Service Team<br>School Support Officers |
| Phase 3: Final Results Module | Finalise development of the functionality for viewing student final results on the student portal | Technical Team<br>Julia Tewkesbury<br>VCAA Administrators |
| Stakeholder Engagement | Ongoing interaction and collection of feedback from end-users throughout the development stages. | All project team and stakeholders |
| Compliance and Standards Adherence | Verification that the portal complies with all relevant Victorian and Federal standards for data, accessibility, and privacy. | Christopher Perry<br>Compliance Officers |
| Progress Evaluation & Testing | Prior to the launch of each phase, the product undergoes rigorous testing to enhance user experience, rectify any bugs, and resolve technical issues. | Technical Team<br>School Support Officers |
| Final Product | The project culminates in a fully developed website and application, accompanied by a comprehensive user manual designed for students, VCAA support staff, and school administrators who utilise the product. | VCAA – sponsor<br>Julia Tewkesbury<br>Christopher Perry |

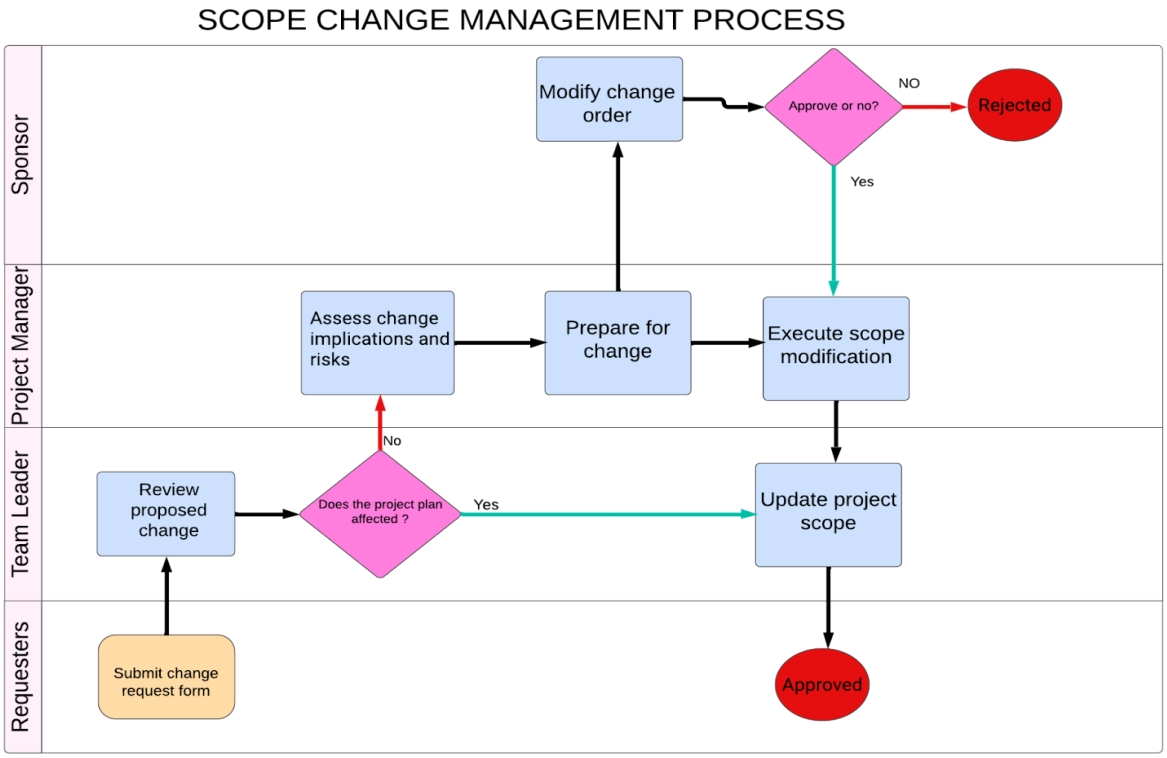
## 2.5 Define a Change Management Process

The potentiality of project scope changes might happen during the project execution phase that results in surpassing planned cost and schedule impact on the success of a project (Adam & Danaparamita, 2016). Scope change management is crucial to protect the initial agreement you have with the sponsor (Mochal & Mochal, 2011). By definition, scope change management is an essential process that ensures any modification to the project scope is delicately examined for the impact on cost, effort, and timeline before approval. This process prevents spontaneous changes and maintains the project's alignment with its primary objective as discussed in the project charter and approved business requirements. The project manager facilitates this process by documenting and evaluating alteration requests, but the final decision will be dependent on the project sponsor, who measures the changes based on their business value and general influence on the project. This approach not only preserves the project's integrity but also discourages ill-considered change requests, ensuring that only changes with outstanding business justification are considered.

For the VCAA Student Portal project, the project team has established a robust change management process, fortified by a change control system and supervised by a change control board. To efficiently visualise and manage this process, the team has chosen to utilise a Swimlane Diagram. Swimlane demonstrates the flow of activities and details the roles of different participants or stakeholders in the process (Shibayama et al., 2017). Each individual or group is designated a lane, listing their responsibilities sequentially from first to last (*What Is a Swimlane in Project Management? | Wrike Project Management*, n.d.). It also offers an elegant representation of process flowcharts, which in turn enhances activity improvisation. They distinguish between each actor performing tasks, and simultaneously recording every task or activity completed by an actor from beginning to end (Milton & Johnson, 2012). Unlike normal flowcharts, swimlane diagrams make responsibilities more explicit (Winkelmann & Weiß, 2011). The project team plans to leverage swimlanes to create a clear, adaptable, and thoroughly detailed process for managing scope changes (Waterhouse, 2021, p. 222). However, before embedding the Swimlane Diagram, the project team would have to thoroughly review its change control system and change control board in the table below:

| Change Control System | Descriptions |
|---|---|
| Documents | • Change Request Form: formal documentation in order to request for alterations in the project scope by internal stakeholders<br>• Change Order: a document used to modify the original agreement on a construction project, detailing required changes in scope of work, cost, and schedule. |
| Authorised individuals can make change | • Project Sponsor (VCAA)<br>• Project Manager:<br>• Project Team Leaders- Technical Team Leader, Financial Team Leader, Operational Team Leader |
| **Change Control Board** | **Responsibilities** |
| Project Sponsor | Have the authority to sanction or initiate changes, as well as provide thorough support and guidance on project scope adjustments. |
| Project Manager | Responsible for reviewing and implementing modifications, monitoring overall project delivery, and assessing the associated benefits and risks. |
| Project Team Leaders | Includes leaders from different departments- Technical, Financial, Operational, Customer |

| | |
|---|---|
| | Service, and Support, all together to scrutinise change request forms, conducts preliminary evaluations, and determines the extent to which the changes significantly affect the project scope. |




The swimlane diagram above depicts the change control process for the VCAA project, from submitting a change request to implementing the authorised change. The lanes symbolise Requesters, Team Leaders, Project Managers, and Sponsors. Requesters submit a change request form, which is reviewed by the Team Leader to see if it affects the project plan. If not, the project scope is changed; if it does, the Project Manager evaluates the change's ramifications and dangers before preparing for it. The Sponsor then amends the modification order as needed and determines whether to approve or reject the request. If authorised, the scope modification is carried out and the project scope is updated; otherwise, the request is marked as rejected.

## 3. Project Time Management

This section will discuss the VCAA project schedule, divided into 5 phases. It will also list out assumptions being made in the process of creating the project's schedule.

### 3.1 Project Schedule Plan

The project will initiate on August 31, 2020. It has a cumulative duration of 7 months and 12 days, which spans from Initiating to Closing phase.

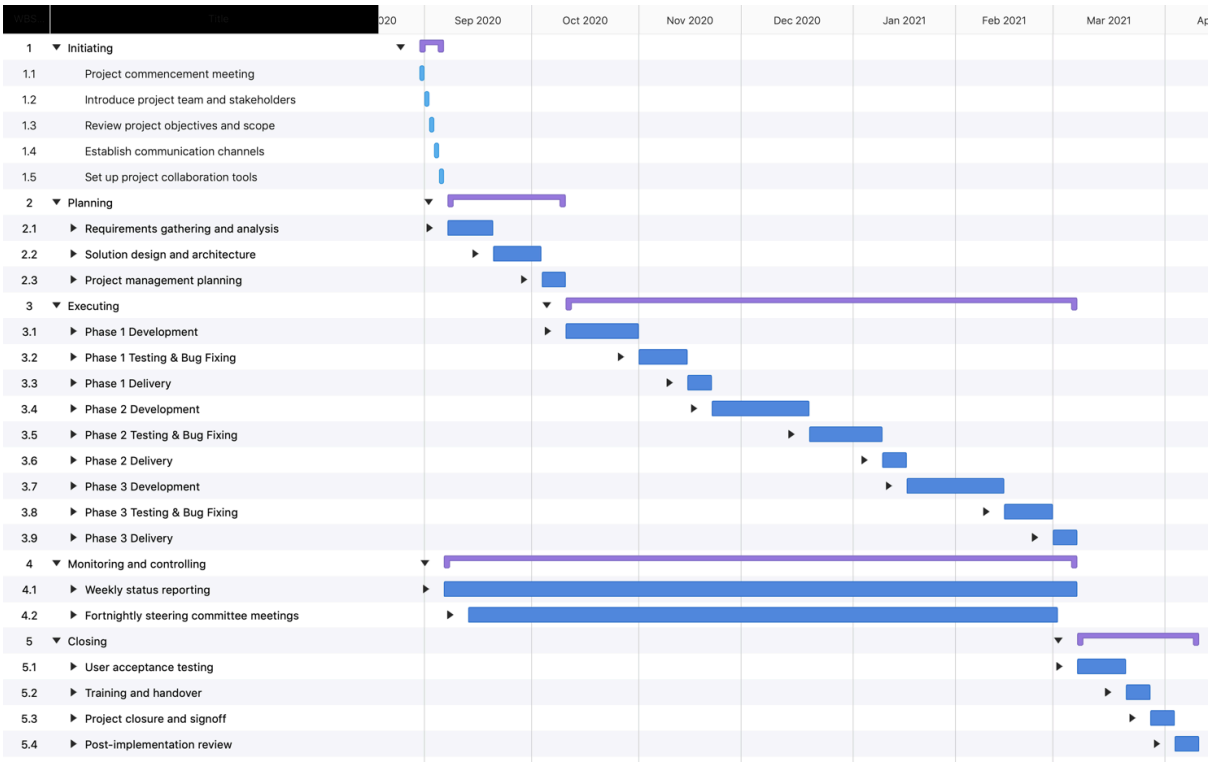
Applying the Waterfall procedure, the schedule is created. Because each duty has a predecessor, it must be completed prior to the others. The following table presents a comprehensive summary of each phase along with their respective objectives.

| Phase | Description |
|---|---|
| 1. Initiating | The initiation phase represents the commencement of the undertaking. In addition to defining the project's scope, objectives, and key stakeholders, it procures the approvals and resources required to move forward. |
| 2. Planning | During the planning phase, a comprehensive road map for the endeavour is developed. This includes developing a project plan and schedule, the identification of risks strategies, the collection and analysis of requirements, the design of the solution architecture, and the establishment of a project governance structure. |
| 3. Executing | During the executing phase, the project team implements the predetermined tasks to produce the desired deliverables. Each of the three phases comprising this stage is devoted to a distinct collection of features and functionalities. |
| 4. Monitoring and Controlling | The objective of this phase is to monitor risks and issues, track progress, and verify that the project is proceeding as planned. Steering committee meetings and status reports are conducted on a regular basis to inform stakeholders and facilitate the process of decision-making. |
| 5. Closing | This phase entails the execution of user acceptance testing, training and handover activities, securing final stakeholder approvals and sign-offs, and conducting a post-implementation review to identify enhancement opportunities and lessons learned. For future reference, the project documents and artefacts are archived. |

## 3.2 Assumptions

- The project commences on 31/08/2020.
- The project will follow a typical work schedule (8am to 5pm, Monday to Friday).
- The necessary resources will be available throughout the project (members, stakeholders, required tools and technologies).
- Stakeholders are expected to be actively involved in key activities.
- The selected technologies and tools are suitable for the project and will not cause any delay or compatibility issue.
- The project scope will remain stable throughout the project’s lifecycle.
- External dependencies will be effectively managed.
- Teams’ productivity will be maintained at a reasonable level.
- Deliverables quality will be controlled; reviews and feedbacks are provided in a timely manner.
- Risks will be identified and risk mitigation strategies will be effective.

## 3.3 Gantt Chart




*Refer to **Appendix 2:** The full detailed Gantt Chart.*

## 3.4 Project Schedule Summary

The table below summarises the project schedule, for the detailed schedule, refers to ***Appendix 3**: Detailed schedule table*

| Phase | Start Date | End Date | Duration |
|---|---|---|---|
| **1. Initiating** | 31/08/2020 | 04/09/2020 | 5 days |
| **2. Planning** | 07/09/2020 | 09/10/2020 | 25 days |
| **3. Executing** | 12/10/2020 | 05/03/2021 | 102 days |
| 3.1 Phase 1 Development | 12/10/2020 | 30/10/2020 | 15 days |
| 3.2 Phase 1 Testing & Bug Fixing | 02/11/2020 | 13/11/2020 | 10 days |
| 3.3 Phase 1 Delivery | 16/11/2020 | 20/11/2020 | 5 days |
| 3.4 Phase 2 Development | 23/11/2020 | 18/12/2020 | 20 days |
| 3.5 Phase 2 Testing & Bug Fixing | 21/12/2020 | 08/01/2021 | 15 days |
| 3.6 Phase 2 Delivery | 11/01/2021 | 15/01/2021 | 5 days |
| 3.7 Phase 3 Development | 18/01/2021 | 12/02/2021 | 20 days |
| 3.8 Phase 3 Testing & Bug Fixing | 15/02/2021 | 26/02/2021 | 10 days |
| 3.9 Phase 3 Delivery | 01/03/2021 | 05/03/2021 | 5 days |
| **4. Monitoring and Controlling** | 07/09/2020 | 05/03/2021 | 130 days |
| **5. Closing** | 08/03/2021 | 09/04/2021 | 25 days |
| **Total Project Duration** | 31/08/2020 | 09/04/2021 | 160 days |

## 4. Cost Management Plan

This section defines the project's budget, which includes estimates for project management, hardware, software development, testing, training, and support. It also provides a full breakdown of costs by project phase, as well as assumptions, limitations, and tables for salaries, Azure services, and other fees.

### 4.1 Level of Accuracy and Unit of Measurement

**Level of Accuracy**

Cost estimation accuracy varies across different items and services, averaging around ±10%. A detailed estimated accuracy can be located under ***Appendix 4****: Cost Management*

**Unit of Measurement**

- Hour (Labour hour): The total amount is determined by presuming that employees follow a full-time work schedule in the project's lifecycle.
- Currency (AUD - Australian Dollars).
- Month (Services): Used to measure monthly and annual cost of services and technologies required.

### 4.2 Project Control Threshold

The table below of project control thresholds establishes the acceptable ranges for critical project metrics and delineates the points at which corrective measures ought to be implemented. Two threshold levels are presented in the table: Warning and Critical.

| Control Threshold | Warning | Critical | Corrective Action |
|---|---|---|---|
| Schedule Variance (SV) | -5% to -10% | < -10% | - Analyse critical path<br>- Fast-track or crash activities<br>- Reassign resources<br>- Renegotiate deadlines |
| Cost Variance (CV) | -5% to -10% | < -10% | - Analyse cost drivers<br>- Reduce scope<br>- Optimise resource utilisation<br>- Renegotiate contracts |
| Schedule Performance Index (SPI) | 0.90 to 0.95 | < 0.90 | - Analyse resource productivity<br>- Provide additional training<br>- Adjust work assignments<br>- Escalate issues to management |
| Cost Performance Index (CPI) | 0.90 to 0.95 | < 0.90 | - Analyse cost efficiency<br>- Identify and eliminate waste<br>- Negotiate better rates with vendors<br>- Escalate issues to management |
| Scope Changes | > 5% | > 10% | - Assess impact on schedule and cost<br>- Obtain approval from change control board<br>- Update project baselines<br>- Communicate changes to stakeholders |

| | | | |
|---|---|---|---|
| Quality Defects | > 5% | > 10% | - Analyse root causes of defects<br>- Implement quality improvement initiatives<br>- Increase testing and quality control<br>- Provide additional training to team members |
| Resource Utilisation | < 80% or > 120% | < 70% or > 130% | - Analyse resource allocations<br>- Adjust work assignments<br>- Hire additional resources if needed<br>- Optimise resource levelling |

When a metric enters the Warning range, the project manager should closely monitor the situation and consider taking the indicated corrective steps to return the metric to the acceptable range. If a measure falls into the Critical range, quick action is necessary to address the problem and avoid additional negative impact on the project.

### 4.3 Rules of Performance Management

The VCAA Student Portal's project cost can be estimated and monitored using the Earned Value Management (EVM) framework, which tracks important indicators using Actual Cost (AC), Planned Value (PV), and Rate of Performance (RP) (Project Management Institute, 2017). These indicators are used to produce metrics such as Cost Variance (CV) and Schedule Performance Index (SPI), which all provide detailed data on the project's cost and schedule performance. The table below illustrates earned value formulas:

| Performance Measure | Notation | Formula |
|---|---|---|
| Earned Value | EV | PV * %Work Complete |
| Schedule Performance Index | SPI | EV / PV |
| Cost Performance Index | CPI | EV / AC |
| Schedule Variance | SV | EV - PV |
| Cost Variance | CV | EV - AC |
| Time Variance | TV | SV / [BAC / SAC] |
| Estimated at Completion | EAC | EAC / CPI |
| Estimated to Complete | ETC | EAC - AC |
| Variation at Completion | VAC | BAC - EAC |
| Time Estimate at Completion | TEAC | SAC / SPI |
| Time Variance at Completion | TVAC | SAC - TEAC |

By modifying and tracking these EVM parameters on a regular basis, the project manager may anticipate the project's overall cost (EAC) as well as the expected completion date (Estimated Time to Complete). This enables informed decision-making and proactive changes to keep the project on schedule.

## 4.4 Project Cost Overview

Australian Dollars (AUD) will be used for the Project Cost Overview. This table will demonstrate an overview of the project's estimated cost in its lifecycle:

| Items | Units | Units Qty. | Cost per Unit | Subtotals | Level 2 Totals | % of Total Budget |
|---|---|---|---|---|---|---|
| **1. Project Management** | | | | | $289,440 | 13% |
| Project Manager | Hour | 600 | $64 | $38,400 | | |
| Project Team Members (6 people) | Hour | 900 | $279 | $251,040 | | |
| **2. Hardware and Infrastructure** | | | | | $91,150 | 4% |
| Azure Services (Function App, Active Directory, Cosmos DB) | Month | 7 | $1,960.5 | $13,724 | | |
| Developer workstations (12) | Unit | 12 | $3,000 | $36,000 | | |
| Testing devices (various) | Unit | 1 | $15,000 | $15,000 | | |
| Staging servers | Unit | 1 | $8,000 | $8,000 | | |
| **3. Software Development** | | | | | $926,400 | 41% |
| Progressive Web App Development | Hour | 1400 | $400 | $560,000 | | |
| VCAA Corporate Database Integration | Hour | 450 | $400 | $180,000 | | |
| UI/UX Design | Hour | 350 | $110 | $38,500 | | |
| Security Implementation | Hour | 250 | $592 | $148,000 | | |
| **4. Testing and Quality Assurance** | | | | | $275,000 | 12% |
| Testers (3 people) | Hour | 500 | $300 | $150,000 | | |
| Security Testing | Hour | 150 | $800 | $120,000 | | |
| User Testing | Unit | 1 | $5,000 | $5,000 | | |
| **5. Training and Support** | | | | | $185,920 | 8% |
| Training Materials Development | Hour | 150 | $333 | $49,920 | | |
| Training Sessions (4 people) | Hour | 250 | $333 | $83,200 | | |
| Post-implementation Support (1 month) | Month | 1 | $52,800 | $52,800 | | |
| **6. Legal and Administrative Fees** | | | | | $22,500 | 1% |

| | | | | | | |
|---|---|---|---|---|---|---|
| Contract review and negotiation | Unit | 1 | $10,000 | $10,000 | | |
| Intellectual property protection | Unit | 1 | $5,000 | $5,000 | | |
| Compliance and regulatory fees | Unit | 1 | $7,500 | $7,500 | | |
| **7. Third-Party Software Licenses** | | | | | $10,500 | 0.4% |
| Development tools | Unit | 1 | $5,000 | $5,000 | | |
| Testing tools | Unit | 1 | $3,000 | $3,000 | | |
| Collaboration and communication tools | Unit | 1 | $2,500 | $2,500 | | |
| **8. Contingency Fund** | | | | | $15,000 | 0.6% |
| Contingency Fund | Unit | 1 | $15,000 | $15,000 | | |
| **9. Reserves (10% of total cost estimate)** | | | | | $224,691 | 10% |
| **Total Project Cost** | | | | | **$2,246,910** | |

This table below demonstrates the project costs allocated to each phase:

| Phase | Duration | Salary Costs | Software Costs | Hardware Costs | Other Costs | Total Cost |
|---|---|---|---|---|---|---|
| Initiation | 1 week | $13,950 | - | - | $1,395 | $15,345 |
| Planning | 5 weeks | $41,850 | $10,500 | $44,000 | $44,895 | $141,245 |
| Execution | | | | | | |
| - Phase 1 | 3 weeks | $92,070 | $264,625 | $13,724 | $37,042 | $407,461 |
| - Phase 2 | 4 weeks | $122,760 | $264,625 | $10,000 | $39,739 | $437,124 |
| - Phase 3 | 3 weeks | $92,070 | $264,625 | $5,000 | $36,170 | $397,865 |
| Monitoring and Controlling | 26 weeks | $153,450 | - | - | $15,345 | $168,795 |
| Closing | 2 weeks | $41,850 | - | - | $135,920 | $177,770 |
| Reserves | - | - | - | - | $224,691 | $224,691 |
| **Total Project Cost** | | | | | | **$2,246,910** |

A baseline salary table, Azure services fees table, and Hardware & Additional fees table can be located under ***Appendix 5****: Azure Services Table*, and ***Appendix 6:*** *Hardware and Additional Fees Table.*

### 4.5 Assumptions and Constraints

**Assumptions**

- The project will run on a 7-month schedule.
- The project scope will remain stable throughout the project's lifecycle.
- The hourly rate for project managers, team members, software developers, testers, and trainers are based on industry standards and are assumed to remain constant throughout the project.

- Azure services costs are estimated based on the current pricing and are assumed to stay the same during the project's lifecycle.
- The required hardware, software licenses, and third-party tools are assumed to be available and delivered on schedule.
- All project team members will be available to the project as planned, without significant interruptions.
- The training sessions and user acceptance testing (UAT) will be conducted as scheduled, with the required user participation and feedback.
- The post-implementation support period of 1 month is sufficient to address any initial issues that may arise.

**Constraints**

- The project must be completed within the 7-month schedule, since delays may impact the budget and resource availability.
- The project team size is fixed, and additional resources may not be readily available if needed.
- The case study documents inform the technology stack and architecture decisions, which may restrict the ability to implement substantial modifications throughout the project.
- The structure and content of the VCAA Corporate Database might present constraints on the process of integrating and migrating data.
- Maintaining adherence to legal, regulatory, and security obligations is obligatory and could potentially restrict specific design or implementation alternatives.
- Any changes to the project scope, timeline, or budget must be formally approved through the project change management process.

## 5. Project Quality Management

Quality management is a critical aspect of any project to ensure it meets stakeholder expectations and delivers the intended benefits (Ravichandran & Rai, 2000). For the VCAA Student Portal project, implementing a robust quality management plan is important as the system will be handling sensitive student data and needs to function reliably (Stanley, MacCann, Gardner, Reynolds, & Wild, 2009).

The goal of the quality management protocol is to certify that the student portal developed meets the requirements for functionality, performance, usability, security, and other quality attributes as outlined in the project scope. This will help gain user acceptance and trust in the system.

Together, the components form a continuous feedback loop to systematically manage quality. Clear roles and responsibilities along with relevant metrics will also be defined. This quality management plan aims to deliver a student portal that not only meets functional requirements but also satisfies users in terms of its quality.

### 5.1 Quality Planning

| Quality | Description |
|---|---|
| Defining quality objectives based on the project objectives | The first step in quality planning will be to define clear and measurable quality objectives based on the overall objectives of the VCAA Student Portal project. Since one of the key |

| | |
|---|---|
| | objectives is to provide an improved user experience for students, a quality objective can be to achieve a user satisfaction rating of at least 80% based on post-implementation surveys. Similarly, since the portal needs to reliably handle student data, an objective related to system availability and performance will also be set. |
| Identifying quality standards for deliverables through requirements analysis | We will conduct detailed requirements analysis upfront to understand all the functional and non-functional expectations from the system. Based on this, quality standards will be defined for each deliverable such as system response time, defect rate for developed components, security compliance, etc. This will provide benchmarks against which the quality of deliverables can be evaluated. |
| Developing the quality assurance and control processes | Quality assurance processes such as peer reviews, testing, audits, etc. will be identified to check if the developed components and documentation meet the defined quality standards. Control points will also be incorporated where deliverables will be approved or rejected. Corrective and preventive action processes will be put in place to address any non-conformances. |
| Determining resources, roles, and responsibilities for quality management | Key resources like testers and reviewers will be identified and budgets will be allocated for quality. Roles of project managers, developers, testers, etc. concerning quality tasks will be specified. This will help ensure accountability and effective implementation of quality processes. |

## 5.2 Quality Standards and Metrics

For any project, defining quality standards upfront is a critical task that helps ensure the end product meets stakeholder expectations and delivers the intended value (Kerzner, 2018). There are several reasons why establishing quality standards from the beginning is important:

- It provides clear targets and criteria against which the project team can measure work quality at each stage of development (Barclay & Osei-Bryson, 2010). This helps align efforts and priorities.
- Early definition prevents "scope creep" where quality expectations change mid-project (Memon, 2023). It sets a fixed bar for the team to aim for from initiation.
- Stakeholders can be confident their priorities are addressed since quality standards directly tie to their needs identified during planning (Saxena, et al., 2010).
- Issues are easier to identify through benchmarked quality standards rather than subjective assessments (Christophe, Léger, & Mailhes, 2005). This streamlines decision-making.

For the VCAA Student Portal, clearly defining quality metrics, targets and processes from the start will help optimize development efforts, manage stakeholder expectations appropriately, and deliver a solution that provides the intended outcomes and experience.

| Quality | Description | Quality for VCAA |
|---|---|---|

| | | |
|---|---|---|
| Functional suitability | This refers to the degree to which the system's functions fulfill specified requirements. The portal must accurately retrieve, calculate, and display the required student and academic data. | For the VCAA Student Portal, functional suitability is important as it needs to accurately retrieve and display student data as well as generate timetables and results. We will track the percentage of requirements validated through testing to ensure full functionality is delivered. |
| Reliability | The system should perform its intended functions consistently and accurately without failure for the duration it will be used. The portal must maintain uptime levels to support students and staff. | The portal needs to be reliable as it will be used by all VCE/VCAL students in Victoria. We will track the system uptime and number of incidents to ensure minimum downtime. For VCAA, the reliability standard is 99.5% uptime with no major outages. |
| Usability | The system must be easy to learn and use. Students should be able to intuitively navigate and complete tasks without assistance. | Ease of use is critical as students will use the portal regularly. We will measure the user satisfaction score through surveys, with a target of 80% of students finding the portal easy to use. |
| Efficiency | The portal's performance in terms of speed and response times must support the number of simultaneous users accessing it. It should have minimal lag or delays. | To ensure quick response times, efficiency is important. We will monitor the system response times against the benchmark of sub-2 second response for over 90% page loads during testing and post-implementation. |
| Maintainability | It should be straightforward for authorized administrators to implement any required system updates or modifications over its lifespan. | VCAA needs to easily support the portal going forward. The maintainability metric is the time to implement changes which should be within 2 weeks for minor changes and 4 weeks for major ones. |

### 5.3 Quality Assurance

Quality assurance plays a vital role in project management to help deliver a system that meets requirements and end-user needs (Abeysinghe, 2022). By implementing robust quality assurance processes, issues can be identified and addressed early before becoming costly problems.

For the VCAA Student Portal project, quality assurance takes on added significance. As the portal will be central to how VCE/VCAL students manage their academic careers, it must perform reliably and as expected. Any quality-related defects could negatively impact the student experience.

Additionally, the portal will house the sensitive personal information of many students. Ensuring data security and privacy is paramount. Quality assurance actions can evaluate if

appropriate controls are built in as per industry standards. This provides confidence to stakeholders that student data is protected.

Defining quality standards upfront based on project objectives and requirements analysis allows the team to concretely measure the system's quality level (Daneva, et al., 2013). Quality assurance then facilitates checking work products against these established criteria.

By conducting various verification activities such as reviews, testing, and audits at suitable stages, the quality assurance process systematically evaluates if standards are met before progressing further. This catches issues in parallel with development so they don't cascade.

We will track the following metrics:

- **Number of defects:** Target is less than 1 defect per 100 function points of code
- **Defect fixing time:** 90% of defects should be resolved within 5 working days
- **User satisfaction survey results:** The Target is an 80% satisfaction score
- **System downtime or performance issues:** Target is less than 0.5% downtime

Overall, a well-defined and executed quality assurance plan for the VCAA project can give stakeholders confidence that the portal being delivered is robust, secure, and fits their needs. It helps ensure the project achieves its quality goals and the intended benefits are successfully delivered.

| Clause | Sub-Clause | Process Description |
|---|---|---|
| Peer reviews of designs, code, and documents | Design review process | Key members will review all design documents and provide feedback on completeness, clarity, and technical correctness to address issues proactively. |
| Usability testing of prototypes with target users | Usability testing process | A sample of intended users will test prototypes to evaluate ease of use and identify improvements needed based on direct user experience and feedback. |
| Security testing to ensure data protection requirements are met | Security testing process | Dedicated testing will be conducted to evaluate security controls, vulnerabilities, and compliance with privacy regulations. Penetration tests will also be performed. |
| Performance testing under simulated load conditions | Load/stress testing process | Tests will simulate high-volume user load to identify bottlenecks or failure points and ensure system stability under peak usage scenarios. |
| Accessibility reviews to meet the Web Content Accessibility Guidelines | Accessibility review process | Automatic and manual checks will be done to ensure the portal conforms to WCAG guidelines and is usable by all, including disabled persons. |

| | | |
|---|---|---|
| Monitoring and reporting on quality metrics | Quality metrics reporting process | Key metrics will be regularly tracked and reviewed to check that quality standards are maintained, and corrective actions can be initiated in case of deviations |

### 5.4 Quality Control Activities

Quality control activities play an important role in ensuring the system meets the desired quality standards (Mitra, 2016). To ensure the VCAA Student Portal is developed according to the defined quality standards, we will carry out the following control points:

| Quality Control Activity | Description |
|---|---|
| Developer Testing | Our in-house development team will individually test each module using test cases before integration. This allows them to address bugs internally at an early stage. |
| Integration Testing | A dedicated testing team will combine integrated components and verify interfaces between the portal and other VCAA systems like the student database. They will pay special attention to edge cases. |
| End User Validation | We will invite students, teachers, and administrators from pilot schools to evaluate the full system over some time in real-world conditions. This provides invaluable feedback from key stakeholders. |
| Accessibility Checks | Special audits will be performed to ensure compliance with WCAG guidelines and that all students can easily use the portal regardless of ability. |
| Performance Testing | Load testing will be done under peak usage scenarios to verify system reliability even during examination periods with high concurrent usage. |
| Data Migration Testing | We will simulate data imports from legacy systems to the new portal and validate accuracy and integrity. |
| Change Validation | Any alterations to the system after implementation will be regression tested to avoid unintended issues. |
| Post-Release Monitoring | System performance and uptime will be actively tracked once live to quickly address any critical issues. |

Collectively, these quality control checkpoints aim to eliminate defects from all phases to deliver a robust, user-friendly system. They form a critical part of our quality assurance process for the portal project.

## 6. Project Risk Management

Every project involves elements of uncertainty that can threaten the successful achievement of objectives (Atkinson, Crawford, & Ward, 2006). To proactively address this, developing a comprehensive risk management plan is important (Chapman & Ward, 2003).

For the VCAA Student Portal project, risks could potentially impact the quality, budget or timelines of this critical system supporting student learning. As such, identifying and mitigating risks in a structured manner assumes significance.

The risk management plan aims to reduce vulnerabilities and increase the likelihood of project success (Susser, 2012). It involves processes to identify, analyze, respond to and monitor risks throughout the project lifecycle. Some key elements that will be covered in our risk management plan include:

- Risk identification methods to catalogue potential threats
- Assessment of impact and likelihood of prioritising risks
- Development of mitigation strategies tailored to high-risk items
- Tools like the risk register to track risks and responses
- Continuous risk monitoring to address emerging risks timely

Together, these help implement a proactive rather than reactive approach to risks. The plan supports informed decision-making to build appropriate contingencies and safeguards into project execution.

### 6.1 Risk Identification

To effectively manage risks, the first step is to comprehensively identify potential issues that may impact the project (Pennock & Haimes, 2002). For the VCAA Student Portal project, we will employ multiple techniques to broaden our search:

- **Brainstorming sessions with team and stakeholders:** We will conduct structured brainstorming workshops early on. Involving the project team and key stakeholders will leverage their collective knowledge of the domain and experiences to surface risks.
- **Reviewing other similar projects:** Studying risk logs and lessons from previous related projects of similar scale and complexity implemented by our organisation can provide insights into common pitfalls to watch out for.
- **Using risk checklists:** We will utilise checklists customised for the education sector and web-based projects to methodically examine the project against standard risk categories relating to technical, organisational, and external factors. This reduces the chance of overlooking any risks.
- **Scope review:** Thoroughly analysing the approved project scope, requirements, assumptions, and constraints will help uncover inherent risks arising from the nature of the work involved. Interfaces with external entities will also be evaluated.

By employing these multiple identification techniques in a planned manner, we aim to get a comprehensive risk profile of the VCAA Student Portal project early to facilitate timely response planning. This increases our ability to proactively manage risks rather than being caught off guard.

### 6.2 Qualitative Risk Analysis using Probability/ Impact Matrix

To prioritise the risks identified for the VCAA Student Portal project, we will conduct a qualitative risk analysis (Kaplan & Mikes, 2016). This involves subjectively evaluating each risk based on two parameters:

| Risk | Description |
|---|---|
| Probability of Occurrence | We will assign a probability rating on a qualitative scale (e.g. high, medium, low) to gauge the likelihood that a given risk may materialise based on our project knowledge, experience with similar efforts, and risk scenarios. |

| | |
|---|---|
| Potential Impact | The potential impact of each risk will also be rated on a qualitative scale to assess the degree to which the risk could affect project objectives if it were to occur. Impact categories may include schedule, cost, quality, scope, etc. |
| Risk Score and Prioritisation | Bringing together the probability and impact ratings will give us a composite risk score. Risks with relatively higher scores will be prioritised for mitigation strategy development through risk workshops with stakeholders. |

| Probability/Impact | Low | Medium | High |
|---|---|---|---|
| **Low** | Minor bugs and defects after deployment affect user experience. | Training materials and documentation are not ready for user go-live. | Lack of buy-in from schools leads to low adoption rates. |
| **Medium** | Requirements are not clearly defined, leading to scope creep. | Stakeholder expectations are not properly managed. | Technical issues during the testing phase delayed go-live. |
| **High** | Delay in project schedule due to key team members leaving the project team. | Budget overruns due to unexpected additional costs. | Security breach exposing students' data. |

This qualitative risk analysis allows us to systematically assess risks in the early project stages with available information (Cooper, Grey, Raymond, & Walker, 2005). It helps identify top risks requiring immediate attention and planning of controls before they potentially damage the project. The analysis will be revisited periodically to re-prioritise risks as the project evolves.

### 6.3 Risk Mitigation

For risks that are assessed to be high-priority based on our qualitative analysis, we will develop targeted mitigation actions and track them closely.

| Mitigation Action | Description |
|---|---|
| Mitigation Action Planning | Specific tasks and owners will be assigned to mitigate each high-priority risk. This may include options like developing contingency systems, allocating more time/resources, establishing fallback arrangements, conducting additional testing, etc. |
| Tracking in Risk Register | Details of the mitigation plan including tasks, owners, target dates, and current status will be captured in the risk register for monitoring and oversight. This provides visibility. |
| Early Warning Indicators | We will define metrics that serve as early signs of high risks manifesting. For example, defects found in integration testing for technical risks. These enable proactive response before risks fully materialise. |
| Contingency Planning | For risks with very high impact, we will formally document alternative contingent courses of action to minimise adverse consequences if the |

| | |
|---|---|
| | risks do occur. For example, fallback options for vendor non-performance. |

Together, these measures will help strengthen our control over prominent risks threatening project objectives (Chapman & Ward, 2003). Regular review meetings will assess progress and make adjustments if risks re-prioritise over time. This facilitates agile risk handling.

### 6.4 Risk Register

The risk register is a key project management tool that allows us to systematically record, monitor, and mitigate risks (Cooper, Grey, Raymond, & Walker, 2005) that could impact the VCAA Student Portal project.

By maintaining the register as a worksheet within our Microsoft Project plan, we can closely track risks and their potential influence on other workstreams and deadlines. This level of visibility is important given the scale and importance of delivering this new system (Miterev, Engwall, & Jerbrant, 2016) for students.

Some potential risk events that could occur in the VCAA Student Portal project, along with their expected impact and proposed mitigation actions, are:

| Risk | Owners | Proba-bility | Impact | Score | Status | Mitigation |
|---|---|---|---|---|---|---|
| Delay in vendor | Project manager, vendor account manager | Medium | Schedule delays, cost overruns | Medium | Open | Penalty clauses in contract, early engagement, staggered deliveries |
| Scope creep in requirements deliverables | Product owner, business analyst | High | Budget, timelines, resources | High | In pro-gress | Requirements workshops, change control process, release planning |
| Data migration issues | Database administrator, data migration lead | Medium | Testing delays, go-live date | Medium | Open | Data mapping, validation scripts, parallel runs, contingency plan |
| Resource unavailability | HR manager, project manager | Low | Work allocation, continuity | Low | Open | Resource pooling, leave planning, succession mapping |

By proactively identifying potential risks and planning mitigations, we aim to minimise threats to the successful delivery of the VCAA Student Portal project. The risk register allows monitoring of our response to evolving challenges.

## 7. Project Procurement Management

### 7.1 Project Procurement

Project procurement management refers to the systematic planning and purchase of products and services required to fulfil the requirements outlined in the project scope (Harrison & Lock, 2017). According to PMBOK principles (2017), the project procurement management process comprises six main stages which explained in ***Appendix 7:*** *Project procurement management.* Also, ***Appendix 7*** will provide further details of these processes, as well as demonstrate how these processes benefit VCAA and the project performance.

The following table outlines the categories, sub-categories, whether to outsource or procure, and the quality criteria for evaluating and selecting vendors and services for the VCAA Student Portal project:

| Categories | Sub-categories | Outsource/ Procure | Quality criteria |
|---|---|---|---|
| Web development | Database Development and Management | Outsource | • Experience with Oracle databases.<br>• Proven success in database integration and management.<br>• Strong security measures and compliance with data privacy standards.<br>• Ability to handle large-scale educational data. |
| | E-Learning Platform Development Services | Procure | • Proven expertise in developing e-learning platforms.<br>• Successful track record in similar projects.<br>• Seamless integration with existing systems.<br>• Compliance with educational standards. |
| | Website Design and Development Services | Procure | • Demonstrated expertise in creating e-learning websites or platforms.<br>• Portfolio of similar projects<br>• Comprehensive understanding of web development frameworks and technologies.<br>• Capability to meet project deadlines and adhere to budget constraints. |

| | | | |
|---|---|---|---|
| Licensing and software | Content management system (CMS) | Outsource | • Compatibility with current systems.<br>• User-friendly and easy to integrate.<br>• Vendor's reputation and reliability.<br>• Favorable licensing terms and pricing.<br>• Technical support and software updates. |
| | SSL Certificate for secure website communication | Outsource | • Established security standards.<br>• Reliability and reputation of the certificate authority.<br>• Comprehensive support for installation and maintenance.<br>• Cost-effectiveness. |
| Hosting and Infrastructure | Website Hosting Services | Outsource | • Proven reliability and uptime.<br>• Ability to scale for future expansion.<br>• Robust data security and backup strategies.<br>• Responsive technical support.<br>• Cost-effective solution. |
| | Server Infrastructure Procurement | Procure | • High-performance specifications.<br>• Compatibility with current systems.<br>• Proven reliability and uptime.<br>• Cost-effective solutions. |
| Security and Compliance | Compliance Consulting Services | Outsource | • Expertise in relevant standards and regulations.<br>• Proven track record in compliance solutions.<br>• Ability to integrate compliance requirements into development.<br>• Competitive pricing. |
| | Security Software or Tools Procurement | Procure | • Proven security features.<br>• Compatibility with current systems.<br>• Vendor support and updates.<br>• Cost-efficiency. |
| Design and Multimedia | Graphic Design Services (branding, visual elements) | Procure | • Creativity and visual appeal.<br>• Specialize in multimedia production. |
| | Content Creation Services (text, images, videos) | Procure | • High-quality content production.<br>• Experience in educational content creation. |

| | | | |
|---|---|---|---|
| | | | • Strong collaboration and communication skills.<br>• Ability to meet deadlines and budget constraints. |
| Maintenance and Support | Bug Fixing and Troubleshooting Services | Outsource | • Proven track record in bug fixing and troubleshooting.<br>• Comprehensive support.<br>• Competitive pricing. |
| | Content Updates and Management Services | Procure | • Expertise in content management.<br>• Ability to meet deadlines.<br>• Competitive pricing.<br>• Strong communication and collaboration skills. |
| Quality Assurance and Testing | Quality assurance testing services | Outsource | • Experience in this area<br>• Thorough testing methods and technologies.<br>• Attention to details in identifying and addressing issues.<br>• Browser and device compatibility testing.<br>• Ability to provide actionable bug reports. |
| | User Experience Testing Services | Outsource | • Proven track record in user experience testing.<br>• Comprehensive testing methodologies.<br>• Ability to provide actionable feedback.<br>• Competitive pricing. |
| | Cross-Browser and Cross-Device Compatibility Testing Services | Outsource | • Experience in compatibility testing.<br>• Proven methodologies.<br>• Comprehensive reporting and actionable insights.<br>• Competitive pricing. |
| Training | Training Services for Managing Website Documentation | Procure | • Access to resources and training documents.<br>• Customizable training options tailored to departmental requirements.<br>• Comprehensive and clear documentation.<br>• Continuous support for training and documentation needs.<br>• User-friendly guidelines and manuals. |

## 7.2 Contracts' types

Choosing the right type of contract is crucial for managing risks and ensuring successful project delivery (Bugrov & Bugrova, 2018). The main types of contracts to be considered are:

| Type of contract | Description | Application in VCAA | Benefits |
|---|---|---|---|
| Fixed-Price or Lump-Sum Contracts | A contract where the buyer pays the seller a fixed amount regardless of the seller's costs (Crasswell, 1991). | Suitable for well-defined components of the VCAA Student Portal project, such as the development of specific modules (e.g., student login and web app features) where the scope, timeline, and deliverables are clear. This type of contract helps in budgeting as costs are predictable and agreed upon upfront. | Provides cost certainty and encourages efficient performance by the vendor. |
| Cost-Reimbursable Contracts | A contract where the buyer reimburses the seller for the seller's allowable costs plus a fee representing the seller's profit (Goetz & Scott, 1978). | Suitable for project features that are not yet fully specified or may undergo changes. This enables adaptability in managing alterations and unexpected occurrences. | Flexibility to accommodate changes and ensures that the project can adapt to new requirements or technologies. |
| Time and Material Contracts | A hybrid contract where the buyer pays the seller based on the time spent and materials used (Winters et al., 2005). | Appropriate for ongoing support, maintenance, and incremental updates to the portal post-deployment. This type of contract is useful for tasks where the exact effort required is uncertain. | Provides flexibility for changes in scope and requirements, while ensuring that the vendor is compensated for the actual time and materials used. |

## 7.3 Source Selection Criteria

To ensure that the best suppliers are selected, the following criteria should be used:

| Category | Criteria | Details | Application in VCAA |
|---|---|---|---|
| Technical | Technical Proficiency | Evaluating the supplier's expertise in web development frameworks, database management, and educational portal design. | Ensure vendors have experience with technologies such as Oracle databases, secure web development practices, and designing user-friendly educational portals. This is critical for ensuring the portal is robust, secure, and user-friendly. |
| | Flexibility | The ability to accommodate changes in scope and requirements. | Choose vendors who demonstrate flexibility in their approach, allowing for adjustments as the project evolves. This is crucial for integrating new features or responding to feedback during the project. |
| Past performance | Experience | Assessing the supplier's track record of similar projects, particularly in the educational sector. | Look for vendors with proven success in developing similar educational platforms. Check references and review past projects to verify their capabilities and outcomes. |
| | Quality | Adherence to high standards and reliability in deliverables. | Evaluate the quality of previous projects, ensuring the vendor can deliver high-quality, reliable solutions. Look for certifications and quality assurance processes that the vendor follows. |
| Price | Cost | Ensuring competitive pricing aligned with the project budget. | Compare vendor proposals to ensure they are cost-effective and within VCAA's budget constraints. Consider both initial development costs and long-term maintenance costs. |
| Management | Responsiveness | Timely and effective communication and problem-solving capabilities. | Ensure the vendor is responsive and can effectively communicate with the VCAA team. This is important for addressing issues promptly and maintaining project momentum. |

## 8. Project Integration Management (Project charter)

| General information of Project |
|---|

| | | | | |
|---|---|---|---|---|
| Name of project | VCAA Student Portal | | | |
| Sponsors (Executive) | VCAA | | | |
| Duration | 31/8/2020- 09/4/2021 | | | |
| **Project's team** | | | | |
| | Name | Department | Phone | Contact |
| Manager | Christopher Perry | Manager | 03 9032 9555 | chrisperry@education.vic.goc.au |
| Team members | | | | |
| 1 | Xuan Son Nguyen | Operational Team | | 103145357@student.swin.edu.au |
| 2 | Hang Nguyen | Financial Team | | 103483659@student.swin.edu.au |
| 3 | Lam Vinh Le | Technical Team | | 103522044@student.swin.edu.au |
| 4 | Phuong Linh Tang | Customer Service Team & Support Team | | 103844450@student.swin.edu.au |
| **Stakeholders** | | | | |
| End-users: VCE students, administrators, schools in Victoria | | | | |
| Department of Education and Training Victoria, Victorian Tertiary Admission Centre (VTAC) | | | | |
| Sponsors | | | | |
| Project team: Christopher Perry- Project manager, project support officers, school support officers | | | | |
| Others: Compliance officers, HR, Vendor Account managers, Testers | | | | |
| **Project Scope Statement** | | | | |
| **Project purpose and business justification** | | | | |

**1. Project purpose**

The VCAA Student Portal project aims to create a user-friendly online platform that improves the educational experience for Year 11 and Year 12 students in VCE or VCAL programmes. The portal's goal is to provide a centralized system where students can access their personal information, subject enrolments, individual examination schedules, practice examinations, and final results. Furthermore, the site will increase communication between VCAA, students, and educational institutions by providing timely notifications and robust support features.

**2. Business Justification**

The VCAA Student Portal aims to improve communication, alerts, and manual operations, addressing major shortcomings in the current system. The portal will streamline processes, reduce administrative burdens, and improve the overall efficiency of information dissemination and management by utilising cutting-edge technology such as information and communication technologies (ICT), big data, the internet of things (IoT), cloud computing, and artificial intelligence (Hennika, 2019).

**Objectives (in business terms)**

The primary goal of VCAA is to improve its digital assessment services by developing a complete student portal. The portal is designed to improve data storage and maintenance, provide an intuitive user interface, and give students convenient access to personal information, enrollment information, exam schedules, and results. Key objectives include shortening the assessment process by automating evaluations, developing a scalable platform to accommodate large user loads and future expansion, enhancing assessment accuracy and timeliness, and adding strong privacy safeguards to secure user information.

**Deliverables**

VCAA Student Portal produce:

- Determine the requirements and needs of the users for the project.
- Project Proposal
- Project procurement contract
- User Interface Design
- Phase 1: Initial Portal Setup
- Phase 2: Enhanced Functionality
- Phase 3: Final Results Module
- Stakeholder Engagement
- Compliance and Standards Adherence
- Progress Evaluation & Testing
- Final Product

**Scope**

1. In scope
    - Personalised student dashboards with access to enrolment details, examination timetables, and results.
    - Mobile optimisation to ensure access on various devices.
    - Real-time notifications and alerts for academic schedules and updates.
    - Administrative functionalities for user management and data updates.
    - Robust security measures to protect student data.
    - Compliance with Victorian government standards for data and privacy.

2. Out scope
    - Integration with non-educational third-party services.
    - Real-time chat functionalities for student support.
    - Advanced analytics features for predictive modelling and trend analysis (to be considered for future phases).

**Project Milestones**

| Phase | Milestone | Complete date |
|---|---|---|
| 1. Initiating | Finalize initiating stage | 04/09/2020 |
| 2. Planning | Planning stage completed | 09/10/2020 |

| | | |
|---|---|---|
| 3. Executing | 3.1 Phase 1 Development | 30/10/2020 |
| | 3.2 Phase 1 Testing & Bug Fixing | 13/11/2020 |
| | 3.3 Phase 1 Delivery | 20/11/2020 |
| | 3.4 Phase 2 Development | 18/12/2020 |
| | 3.5 Phase 2 Testing & Bug Fixing | 08/01/2021 |
| | 3.6 Phase 2 Delivery | 15/01/2021 |
| | 3.7 Phase 3 Development | 12/02/2021 |
| | 3.8 Phase 3 Testing & Bug Fixing | 26/02/2021 |
| | 3.9 Phase 3 Delivery | 05/03/2021 |
| 4. Monitoring and Controlling | Monitoring and controlling stage completed | 05/03/2021 |
| **5. Closing** | Closing stage completed | 09/04/2021 |

**Major Risks and Assumption**

| Risk | Rank |
|---|---|
| Security breach exposing students' data | High |
| Lack of buy-in from schools leads to low adoption rate | Medium |
| Technical issues during the testing phase delayed go-live. | Medium |
| Stakeholder expectations are not properly managed. | Medium |
| Training materials and documentation are not ready for user go-live. | Medium |
| Budget overruns due to unexpected additional costs. | Medium |
| Delay in project schedule due to key team members leaving the project team. | Medium |
| Requirements are not clearly defined leading to scope creep. | Medium |
| Minor bugs and defects after deployment affect user experience. | Low |

**Constrains**

- The project must align with the indicative procurement timelines and be completed within the agreed timeframe.
- The project must stay within the allocated budget, covering all phases from development to implementation and maintenance.
- Availability of necessary technological infrastructure and tools required for the project.
- The portal must integrate seamlessly with existing systems
- Identifying potential risks and having a risk mitigation plan.
- Ensuring the portal adheres to all data privacy laws and regulations.

**External dependencies**

Some categories required outsourcing including:

| Categories | Sub- categories |
|---|---|
| Web development | Database Development and Management |
| Software and Licensing | Content Management System (CMS) Software or Licensing |
| | SSL Certificate for secure website communication |
| Hosting and Infrastructure | Website Hosting Services |
| Security and Compliance | Compliance Consulting Services |
| Maintenance and Support | Bug Fixing and Troubleshooting Services |
| Quality Assurance and Testing | Quality Assurance Testing Services |
| | User Experience Testing Services |
| | Cross-Browser and Cross-Device Compatibility Testing Services |

## 5. Communication Strategy

**Objectives:**

- Timely, accurate information dissemination.
- Facilitate collaboration.
- Provide regular updates.
- Gather feedback.

**Methods:**

- Kickoff meeting, Weekly/ Monthly seetings, training sessions, QA reports, user guides, stakeholder meetings.

**Tools:**

- Email, Project management software, , Project portal, Document sharing platforms, Messaging.

**Escalation:**

- Identify, assess, escalate, resolve

## 6. Sign-off

| | Name | Signature | Date |
|---|---|---|---|
| Executive sponsor | VCAA | | |
| Department sponsor | VCAA | | |
| Project Manager | Christopher Perry | | |

## 7. Notes

## Appendix

***Appendix 1**: Project's work breakdown structure (WBS) [File attached]*
***Appendix 2:** The full-detailed Gantt Chart [File attached].*
***Appendix 3**: Detailed schedule table*

| Task ID | Task Name | Start Date | End Date | Predecessor |
|---|---|---|---|---|
| **1** | **Initiating** | **31/08/2020** | **04/09/2020** | |
| **1.1** | Project commencement meeting | 31/08/2020 | 31/08/2020 | |
| **1.2** | Introduce project team and stakeholders | 01/09/2020 | 01/09/2020 | 1.1 |
| **1.3** | Review project objectives and scope | 02/09/2020 | 02/09/2020 | 1.2 |
| **1.4** | Establish communication channels | 03/09/2020 | 03/09/2020 | 1.3 |
| **1.5** | Set up project collaboration tools | 04/09/2020 | 04/09/2020 | 1.4 |
| **2** | **Planning** | **07/09/2020** | **09/10/2020** | |
| **2.1** | **Requirements gathering and analysis** | **07/09/2020** | **18/09/2020** | **1.5** |
| **2.1.1** | Conduct stakeholder interviews | 07/09/2020 | 11/09/2020 | 2.1 |
| **2.1.2** | Document functional and non-functional requirements | 14/09/2020 | 15/09/2020 | 2.1.1 |
| **2.1.3** | Prioritise and validate requirements | 16/09/2020 | 17/09/2020 | 2.1.2 |
| **2.1.4** | Create user stories and acceptance criteria | 18/09/2020 | 18/09/2020 | 2.1.3 |
| **2.2** | **Solution design and architecture** | **21/09/2020** | **02/10/2020** | **2.1.4** |
| **2.2.1** | Design system architecture | 21/09/2020 | 25/09/2020 | 2.2 |
| **2.2.2** | Create high-level design documents | 28/09/2020 | 29/09/2020 | 2.2.1 |
| **2.2.3** | Define integration points and data flow | 30/09/2020 | 01/10/2020 | 2.2.2 |
| **2.2.4** | Select technology stack and tools | 02/10/2020 | 02/10/2020 | 2.2.3 |
| **2.3** | **Project management planning** | **05/10/2020** | **09/10/2020** | **2.2.4** |
| **2.3.1** | Create project charter | 05/10/2020 | 05/10/2020 | 2.3 |
| **2.3.2** | Develop project plan and schedule | 06/10/2020 | 07/10/2020 | 2.3.1 |
| **2.3.3** | Identify project risks and mitigation strategies | 08/10/2020 | 08/10/2020 | 2.3.2 |
| **2.3.4** | Establish project governance structure | 09/10/2020 | 09/10/2020 | 2.3.3 |
| **3** | **Executing** | **12/10/2020** | **05/03/2021** | |
| **3.1** | **Phase 1 Development** | **12/10/2020** | **30/10/2020** | **2.3.4** |
| **3.1.1** | Set up development environment | 12/10/2020 | 13/10/2020 | 3.1 |
| **3.1.2** | Develop web app and website | 14/10/2020 | 21/10/2020 | 3.1.1 |
| **3.1.3** | Implement student login functionality | 22/10/2020 | 23/10/2020 | 3.1.2 |
| **3.1.4** | Develop personal details section | 26/10/2020 | 27/10/2020 | 3.1.3 |
| **3.1.5** | Develop enrolment details section | 28/10/2020 | 29/10/2020 | 3.1.4 |
| **3.1.6** | Implement support functionality | 30/10/2020 | 30/10/2020 | 3.1.5 |
| **3.2** | **Phase 1 Testing & Bug Fixing** | **02/11/2020** | **13/11/2020** | **3.1.6** |
| **3.2.1** | Create test plan and test cases | 02/11/2020 | 03/11/2020 | 3.2 |

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|---|---|---|---|---|---|
| **3.2.2** | | Conduct unit testing | 04/11/2020 | 05/11/2020 | 3.2.1 |
| **3.2.3** | | Perform integration testing | 06/11/2020 | 09/11/2020 | 3.2.2 |
| **3.2.4** | | Execute system testing | 10/11/2020 | 11/11/2020 | 3.2.3 |
| **3.2.5** | | Identify and fix bugs | 12/11/2020 | 13/11/2020 | 3.2.4 |
| **3.3** | **Phase 1 Delivery** | | **16/11/2020** | **20/11/2020** | **3.2.5** |
| **3.3.1** | | Prepare deployment package | 16/11/2020 | 16/11/2020 | 3.3 |
| **3.3.2** | | Deploy Phase 1 features to production environment | 17/11/2020 | 18/11/2020 | 3.3.1 |
| **3.3.3** | | Conduct smoke testing | 19/11/2020 | 19/11/2020 | 3.3.2 |
| **3.3.4** | | Prepare user documentation and release notes | 20/11/2020 | 20/11/2020 | 3.3.3 |
| **3.4** | **Phase 2 Development** | | **23/11/2020** | **18/12/2020** | **3.3.4** |
| **3.4.1** | | Develop exam timetable functionality | 23/11/2020 | 04/12/2020 | 3.4 |
| **3.4.2** | | Implement notification system | 07/12/2020 | 11/12/2020 | 3.4.1 |
| **3.4.3** | | Develop admin functionality | 14/12/2020 | 18/12/2020 | 3.4.2 |
| **3.5** | **Phase 2 Testing & Bug Fixing** | | **21/12/2020** | **08/01/2021** | **3.4.3** |
| **3.5.1** | | Update test plan and test cases | 21/12/2020 | 22/12/2020 | 3.5 |
| **3.5.2** | | Conduct testing for Phase 2 features | 23/12/2020 | 31/12/2020 | 3.5.1 |
| **3.5.3** | | Identify and fix bugs | 01/01/2021 | 08/01/2021 | 3.5.2 |
| **3.6** | **Phase 2 Delivery** | | **11/01/2021** | **15/01/2021** | **3.5.3** |
| **3.6.1** | | Prepare deployment package | 11/01/2021 | 11/01/2021 | 3.6 |
| **3.6.2** | | Deploy Phase 2 features to production environment | 12/01/2021 | 13/01/2021 | 3.6.1 |
| **3.6.3** | | Conduct smoke testing | 14/01/2021 | 14/01/2021 | 3.6.2 |
| **3.6.4** | | Update user documentation and release notes | 15/01/2021 | 15/01/2021 | 3.6.3 |
| **3.7** | **Phase 3 Development** | | **18/01/2021** | **12/02/2021** | **3.6.4** |
| **3.7.1** | | Develop final results functionality | 18/01/2021 | 05/02/2021 | 3.7 |
| **3.7.2** | | Implement historical results feature | 08/02/2021 | 12/02/2021 | 3.7.1 |
| **3.8** | **Phase 3 Testing & Bug Fixing** | | **15/02/2021** | **26/02/2021** | **3.7.2** |
| **3.8.1** | | Update test plan and test cases | 15/02/2021 | 16/02/2021 | 3.8 |
| **3.8.2** | | Conduct testing for Phase 3 features | 17/02/2021 | 22/02/2021 | 3.8.1 |
| **3.8.3** | | Identify and fix bugs | 23/02/2021 | 26/02/2021 | 3.8.2 |
| **3.9** | **Phase 3 Delivery** | | **01/03/2021** | **05/03/2021** | **3.8.3** |
| **3.9.1** | | Prepare deployment package | 01/03/2021 | 01/03/2021 | 3.9 |
| **3.9.2** | | Deploy Phase 3 features to production environment | 02/03/2021 | 03/03/2021 | 3.9.1 |
| **3.9.3** | | Conduct smoke testing | 04/03/2021 | 04/03/2021 | 3.9.2 |
| **3.9.4** | | Update user documentation and release notes | 05/03/2021 | 05/03/2021 | 3.9.3 |
| **4** | **Monitoring and controlling** | | **07/09/2020** | **05/03/2021** | |
| **4.1** | **Weekly status reporting** | | **07/09/2020** | **05/03/2021** | **3.1** |
| **4.1.1** | | Prepare weekly status reports | 07/09/2020 | 05/03/2021 | 4.1 |
| **4.1.2** | | Identify and report project risks and issues | 07/09/2020 | 05/03/2021 | 4.1.1 |

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|---|---|---|---|---|
| **4.1.3** | Update project plan and schedule | 07/09/2020 | 05/03/2021 | 4.1.2 |
| **4.2** | **Fortnightly steering committee meetings** | **14/09/2020** | **01/03/2021** | **4.1** |
| **4.2.1** | Prepare meeting agenda and materials | 14/09/2020 | 01/03/2021 | 4.2 |
| **4.2.2** | Present project progress and key milestones | 14/09/2020 | 01/03/2021 | 4.2.1 |
| **4.2.3** | Discuss and resolve project issues and risks | 14/09/2020 | 01/03/2021 | 4.2.2 |
| **4.2.4** | Obtain project steering committee decisions and approvals | 14/09/2020 | 01/03/2021 | 4.2.3 |
| **5** | **Closing** | **08/03/2021** | **09/04/2021** | |
| **5.1** | **User acceptance testing** | **08/03/2021** | **19/03/2021** | **3.9.4** |
| **5.1.1** | Prepare UAT test plan and test cases | 08/03/2021 | 09/03/2021 | 5.1 |
| **5.1.2** | Conduct user acceptance testing with key stakeholders | 10/03/2021 | 17/03/2021 | 5.1.1 |
| **5.1.3** | Obtain UAT sign-off | 18/03/2021 | 19/03/2021 | 5.1.2 |
| **5.2** | **Training and handover** | **22/03/2021** | **26/03/2021** | **5.1.3** |
| **5.2.1** | Develop training materials | 22/03/2021 | 23/03/2021 | 5.2 |
| **5.2.2** | Conduct user training sessions | 24/03/2021 | 25/03/2021 | 5.2.1 |
| **5.2.3** | Handover project documentation and deliverables | 26/03/2021 | 26/03/2021 | 5.2.2 |
| **5.3** | **Project closure and sign-off** | **29/03/2021** | **02/04/2021** | **5.2.3** |
| **5.3.1** | Prepare project closure report | 29/03/2021 | 30/03/2021 | 5.3 |
| **5.3.2** | Obtain project sponsor and stakeholder sign-off | 31/03/2021 | 01/04/2021 | 5.3.1 |
| **5.3.3** | Archive project documents and artefacts | 02/04/2021 | 02/04/2021 | 5.3.2 |
| **5.4** | **Post-implementation review** | **05/04/2021** | **09/04/2021** | **5.3.3** |
| **5.4.1** | Conduct post-implementation review meeting | 05/04/2021 | 06/04/2021 | 5.4 |
| **5.4.2** | Identify lessons learned and areas for improvement | 07/04/2021 | 08/04/2021 | 5.4.1 |
| **5.4.3** | Create action plan for implementing improvements | 09/04/2021 | 09/04/2021 | 5.4.2 |

***Appendix 4**: Cost Management (Salary Table)*

| Title | Number | Salary (Annual) | Accuracy (±10%) | Description |
|---|---|---|---|---|
| Project Manager | 1 | $133,120 | $119,808 - $146,432 | Responsible for overall project management, planning, and coordination |
| Project Team Member | 6 | $124,800 | $112,320 - $137,280 | Assists the Project Manager in various project tasks and responsibilities |

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|---|---|---|---|---|
| Software Developer (Junior) | 12 | $104,000 | $93,600 - $114,400 | Develops and implements software components, including the Progressive Web App and database integration |
| UI/UX Designer | 2 | $76,960 | $69,264 - $84,656 | Designs and implements the user interface and user experience for the Student Portal |
| Security Specialist | 2 | $104,000 | $93,600 - $114,400 | Ensures the security of the Student Portal, including implementation and testing |
| Tester | 3 | $99,840 | $89,856 - $109,824 | Performs testing and quality assurance on the Student Portal components |
| Trainer | 4 | $83,200 | $74,880 - $91,520 | Develops training materials and conducts training sessions for users of the Student Portal |
| Support Specialist | 3 | $99,840 | $89,856 - $109,824 | Provides post-implementation support for the Student Portal during the first 3 months |

***Appendix 5**: Azure Services Table*

| Azure Service | Monthly Cost | Annual Cost | Accuracy Range | Accuracy |
|---|---|---|---|---|
| Azure Function App | $1,000 | $12,000 | $11,400 - $12,600 | ±5% |
| Azure Active Directory | $950 | $11,400 | $10,830 - $11,970 | ±5% |
| Azure Cosmos DB | $10.5 | $126 | $120 - $132 | ±5% |
| **Total** | **$1,960.5** | **$23,526** | **$22,350 - $24,702** | **±5%** |

***Appendix 6:** Hardware and Additional Fees Table.*

| Title | Estimated Cost | Accuracy (±5%) |
|---|---|---|
| **Hardware Costs** | | |
| - Developer workstations (12) | $36,000 | $34,200 - $37,800 |
| - Testing devices (various) | $15,000 | $14,250 - $15,750 |
| - Staging servers | $8,000 | $7,600 - $8,400 |
| **Legal Fees** | | |
| - Contract review and negotiation | $10,000 | $9,500 - $10,500 |
| - Intellectual property protection | $5,000 | $4,750 - $5,250 |
| - Compliance and regulatory fees | $7,500 | $7,125 - $7,875 |
| **User Testing** | | |
| - User recruitment | $2,000 | $1,900 - $2,100 |
| - Incentives for participants | $3,000 | $2,850 - $3,150 |
| - User testing facility rental | $1,500 | $1,425 - $1,575 |
| - User testing equipment | $1,000 | $950 - $1,050 |
| **Third-Party Software Licenses** | | |
| - Development tools | $5,000 | $4,750 - $5,250 |
| - Testing tools | $3,000 | $2,850 - $3,150 |
| - Collaboration and communication tools | $2,500 | $2,375 - $2,625 |

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|---|---|---|
| **Contingency Fund** | $15,000 | $14,250 - $15,750 |
| **Total Additional Costs** | **$114,500** | **$108,775 - $120,225** |

***Appendix 7:*** *Project procurement management*

| Procurement processes | Description | Benefits for VCAA | Considerations |
|---|---|---|---|
| Plan Purchases and Acquisition | Determining what to procure, when, and how. | - Ensures all necessary services and products are identified early.<br>- Helps in budgeting and resource allocation.<br>- Improves project planning and scheduling accuracy. | - Accurate assessment of project needs.<br>- Alignment with project goals and timelines.<br>- Cost estimation and budgeting. |
| Plan Contracting | Documenting product requirements and identifying potential vendors. | - Clarifies project requirements for vendors.<br>- Facilitates effective vendor selection.<br>- Ensures compliance with legal and regulatory standards. | - Clear definition of requirements.<br>- Identification of qualified vendors.<br>- Legal and regulatory considerations. |
| Request Seller Responses | Obtaining bids, quotes, and proposals from potential vendors. | - Encourages competition among vendors.<br>- Provides a basis for evaluating different proposals.<br>- Helps identify the most suitable vendor. | - Detailed and comprehensive RFP.<br>- Transparent evaluation criteria.<br>- Timely communication with vendors. |
| Select Sellers | Reviewing proposals and selecting the most suitable vendor. | - Ensures selection of vendors that best meet project requirements.<br>- Mitigates risks by choosing reliable and experienced vendors.<br>- Enhances project quality and performance. | - Objective evaluation process.<br>- Consideration of vendor track record and capabilities.<br>- Negotiation of favorable terms and conditions. |
| Contract Administration | Managing the contract and relationship between buyer and seller. | - Ensures compliance with contract terms.<br>- Facilitates communication and problem-solving with vendors.<br>- Monitors vendor performance to ensure project goals are met. | - Regular monitoring and reporting.<br>- Effective communication channels.<br>- Handling of changes and disputes. |
| Contract Closure | Completing and settling the contract, | - Ensures all contract obligations are fulfilled. | - Verification of completed work. |

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|---|---|---|---|
| | including resolving any open items. | - Provides formal acceptance of vendor deliverables.<br>- Facilitates project closure and documentation. | - Formal acceptance and payment.<br>- Documentation and lessons learned. |

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