Business School

School of Information Systems Technology and Management

TEAM PROJECT COVER PAGE

Title of Assignment: Assessment Group Project: PetWorld

Tutor Name: George Robinson. **Tutorial Time:** Wednesday 1-3pm (W13A)

Date Due: 29/07/2024 **Date Submitted:** 29/07/2024

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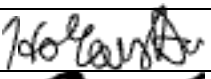
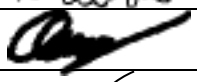
Z5416258	Ho Yeung Au		29/07/2024
Z5307203	Ho, Sy Anh Quoc		29/07/2024
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This cover sheet has to be completed and signed by ALL members in the group for the assignment submitted.

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Project Management Plan for PetWorld Mobile App Development

Crusade Consulting

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1. Enterprise Analysis

1.1 Problem Statement

In the evolving landscape of online pet food and supplies retailers, tech innovations have become crucial for online pet care companies to compete. The PetWorld project, initiated in February 2023 was outsourced to TechBuild, encountering multiple challenges including scope changes, communication breakdowns, inadequate methodology adaptation, unsustainable resource turnover and conflicts with the Pet Data Protection Act. These have hindered the project's timely progression, causing budget overruns of around 20%, and raising concerns regarding the commitment to the planned launch date of September 2024. Consequently, urgent restructuring of the project management approach is necessary to ensure the project realigns with its goals and is successfully launched on time. To address this, we recommend that PetWorld replace the current project manager with our consulting team, who will bring the necessary expertise to reevaluate priorities and realign the project with its goals. Therefore, this report details our comprehensive project management plan to execute this solution.

1.2 Problem Domain

The initiative to develop an application addresses the growing traction towards online retail platforms (IBISWorld 2023), bridging the gap between in-store shopping and the convenience of online purchasing. However, our team understands that the project has encountered several management challenges that threaten its success and timely completion. Therefore, with the ambition to deliver a refined project management approach addressing these issues, we hope to ensure the app development process is streamlined and satisfies PetWorld's strategic objectives. Before execution, this refinement requires careful consideration of the enabling factors and inherent risks, as shown below.

Key considerations	Potential Risks
Agile-Adaptability	**Methodology fit:** TechBuild's current approach is not suitable for the project's size, which may lead to missed deadlines.
Quality-Assurance	**Quality Risks:** Insufficient testing may result in persistent quality issues and poor UX.
Budget-Control	**Cost Overruns:** The project is already projected to exceed its budget by 20%, necessitating careful cost management.

Additional understanding:

PetWorld faces a severe communication problem, with stakeholders bypassing internal protocols and contacting TechBuild directly. This direct contact causes major issues and unplanned changes to the project scope, leading to delays and resource strain. This report analyses how our solution addresses this issue

By grounding further analysis in the assumptions below, we can prepare a practical solution that is also sustainable. The following justifications are selected based on strategic considerations that align with PetWorld's operational capacity and vision.

Assumption:	**Justification:**
Methodology Adaptation: Adopting a hybrid methodology approach will mitigate barriers to meeting deadlines and improve project deliverables.	Agile-waterfall hybrid provides a clear framework for managing the current project's size and requirements (Freshworks 2024).
Resource Stability: Stabilising the project team and retaining key members will reduce knowledge loss and maintain productivity.	Assumption is supported by Brook's law (CodeScene 2019) and the importance of continuity within a team for maintaining project momentum.

2. Project Management Approach

2.1 Stakeholder Management

PetWorld must identify all people and organisations that are affected by their project to engage with their stakeholders effectively. Thus, stakeholder management will be required to manage the company's internal and external stakeholder relationships going forward. A description of PetWorld's stakeholders is listed below.

2.1.1 Internal Stakeholders

1. **Project Sponsor:** PetWorld executives and key decision-makers who initiated the project and hold accountability for its success. They are primarily concerned with achieving strategic objectives (e.g., increasing the company's revenue growth).
2. **Project Team:** Comprised of TechBuild developers, UX designers, and project managers who are responsible for the day-to-day execution of the app development. Their primary focus is meeting technical requirements and ensuring quality assurance is performed within the projected timeframe.
3. **Support Staff:** Internal teams providing support services (e.g., IT infrastructure, customer service, etc.). Their role is important to ensure the smooth operation and integration of the app with the company's existing systems and processes.
4. **Internal Customers:** Departments (e.g., sales, marketing, customer support, etc.) within PetWorld, that are end-users of the mobile app functionalities. They provide valuable insights into user requirements and expectations, influencing feature prioritisation and usability testing.
5. **Top Management:** Senior executives and department heads within PetWorld oversee project governance, resource allocation, and strategic alignment. Their support and endorsement are essential for securing necessary resources and overcoming organisational barriers.

2.1.2 External Stakeholders

1. **Customers:** PetWorld's external customers will use the mobile app for online orders and in-store pickups. Their feedback during testing and post-launch will influence future app updates.
2. **Competitors:** This includes other pet food and accessories retailers. Their market activities and technological advancements could influence PetWorld's project strategy.
3. **Suppliers:** External vendors who supply the components, technologies, or services that are critical to the app's development and operation.
4. **Government:** The governing regulatory body whose laws could impact project compliance or acceptance. Their involvement will impact Petworld's data collection and user consent policies, thereby impacting the overall app design.

To determine an approach for managing PetWorld's stakeholder relationships, a power/interest grid has been constructed below (**Figure 1**). This will ensure that PetWorld can effectively communicate and work with its stakeholders to meet their needs and expectations, as well as foster engagement in project decisions.

From the grid, it can be observed that the project sponsor and project team have high power and interest in the project. Therefore, we recommend that PetWorld closely manage these two stakeholders going forward to ensure that they are aware of the project and are actively engaged.

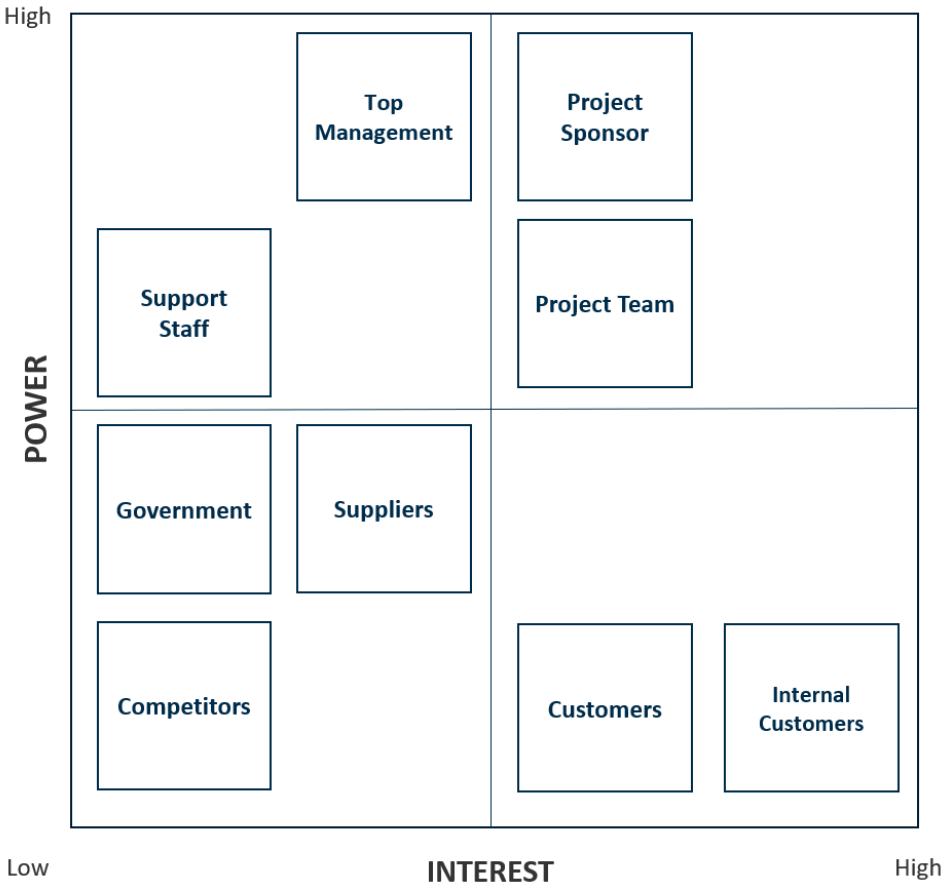

Figure 1: PetWorld Power/Interest Grid

2.2 Project Management Tools

In managing PetWorld's mobile app development project, effective scope, time, cost, and risk management is crucial to ensure clarity and alignment with the company's stakeholder expectations. As such, listed below are the specific project management tools that will be expanded upon further in the report:

1. Project Charter,
2. Scope Statement,
3. Work Breakdown Structure (WBS),
4. Schedule Management Plan,
5. Gantt Chart,
6. Network Diagram/Critical Path Analysis (CPA),
7. Costing Budget,
8. Risk Register, and
9. Risk Matrix.

2.3 Communication & Cadences

Current communication channels and cadence have proven insufficient as the scope complexity grew, resulting in information silos within PetWorld. As such, we recommend that PetWorld adopt a holistic communication and cadence approach that promotes clarity and consistency below.

1. **Project management dashboard:** A real-time data dashboard that displays high-level metrics allows PetWorld and TechBuild, as well as key stakeholders, to track the project's progress (Hartshorne 2023). This allows stakeholders with enhanced visibility and transparency, thereby enabling them to quickly understand the crucial factors hindering the project's processes (Clarke 2024). This platform will serve as the single source of truth, consolidating all project-related documentation and updates.
2. **Regular meetings:** Daily stand-ups including TechBuild developers and PetWorld's internal stakeholders to discuss progress, address blockers, and plan daily tasks. This aligns with Agile practices, promoting quick feedback and issue resolution (Radigan 2024). Further, weekly status meetings will be held to discuss project progress, milestones, and upcoming tasks. These meetings will include key stakeholders to ensure alignment and transparency with new feature integration.
3. **Formal and informal communication:** Formal communication will involve meetings and presentations, and will be used for important announcements when there is a need for clarification or with external stakeholders (e.g., TechBuild). Informal communication involves casual check-ins to foster a collaborative culture and quick issue resolution. This will be particularly useful for exchanging ideas and day-to-day interactions within PetWorld.

2.4 Methodology

TechBuild is currently using an agile iterative approach for the development of PetWorld's mobile app. While the Agile methodology is notable for its flexibility, it is evident from the project challenges that this approach is not entirely suited for the scale and complexity of PetWorld's project.

Given these challenges, we recommend PetWorld consider a hybrid approach that combines elements of both Agile and traditional Waterfall methodologies, tailored to address the specific needs and scale of their project (TeamGantt 2024). This hybrid approach allows PetWorld to benefit from the clear project planning and documentation of Waterfall, whilst maintaining the adaptability and iterative nature of Agile (Lozo & Jovanović 2012).

We propose PetWorld to implement the hybrid methodology as follows:

Project Process Groups	**Methodology**	**Justification**
Initiating	Waterfall	Sets the foundation for the project. Ensures a structured approach with well-defined scope, objectives, stakeholders, etc.
Planning	Waterfall	Guarantees all project aspects are considered and documented before execution, preventing scope creep.
Executing	Agile	Iterative development and ongoing improvement allow project team to make necessary adjustments to changes in real-time.
Monitoring and Control	Agile	Regular sprint reviews present real-time insights into areas requiring improvement.
Closing	Waterfall	Formal acceptance and sign-off on project deliverables to ensure all stakeholders are satisfied with app.

3. Scope Management

3.1 Scope Statement

Project Scope Statement	
Project Name	PetWorld Mobile App Project
Project Scope Description	PetWorld's Mobile App aims to develop an application that enhances UX and drives sales growth. The app enables customers to order products online for home delivery or in-store pickup.
Product Deliverables	● Features for ordering products ● Home delivery & in-store pickup options ● Personalised pet recommendations ● Compliance with Pet Data Protection Act (PDPA) ○ Encryption of all pet & owner information ○ Features for users to access, correct & delete their data ○ Strict data sharing controls with third parties ● User and staff training manuals ● Testing & bug-fixing reports
Project Acceptance Criteria	● Successful implementation of product ordering features ● Comply with PDPA ● Successful completion of performance, security, and user acceptance testing. ● Approval received from key stakeholders.
Project Exclusions	● Additional feature requests (unless approved by Change Control Board) ● Development of a web-based version of the mobile app ● Marketing & promotional activities for the app ● Ongoing feature updates ● Ongoing operational support
Project Constraints	● The project must be completed by 30 September, 2024 ● The project must not exceed the total budget of $1,300,000. ● The app must comply with PDPA.
Project Assumptions	● All necessary software, hardware, and personnel are provided ● Stakeholders will provide timely input/feedback ● Requirements will remain fairly stable. If changes are to occur, this will be managed by the scope control process.

3.2 Project Requirements

Requirements Number	Name	Category	Source	Status
1	Online ordering system	Software	Project charter and software specifications	In progress
2	Home delivery & in-store pickup options	Software	Project charter and software specification	In progress
4	Personalised pet care recommendations	Software	Marketing department change request (CR)	In progress
3	Order tracking	Software	Project charter and software specifications	Planned
5	Live chat support	Software	Project charter and software specifications	Planned
6	Consent management	Software	PDPA compliance CR	Planned
7	User data encryption	Software	PDPA compliance CR	Planned
8	Data access, correction, deletion features	Software	PDPA compliance CR	Planned
9	Data sharing controls	Software	PDPA compliance CR	Planned
10	Centralised communication channel	People	Project management plan	Completed
11	Communication feedback mechanism	People	Project management plan	Completed

3.3 Work Breakdown Structure

1.0 PetWorld Mobile App Project		
	1.1 Project Management	
		1.1.1 Project Planning
		1.1.2 Communications Management
		1.1.3 Risk Management
	1.2 Product Requirements	
		1.2.1 Gather Requirements
		1.2.2 Document Analysis
		1.2.3 Analyse Compliance Requirements
	1.3 Design	
		1.3.1 Functional Design
		1.3.2 Database Design
		1.3.3 UI Design
	1.4 Construct	
		1.4.1 Core Features Development
		1.4.2 Additional Features Development
		1.4.3 Compliance Features Development
	1.5 Testing	
		1.5.1 Functional Testing
		1.5.2 Compliance Testing
		1.5.3 User Acceptance Testing
	1.6 Product Deployment	
	1.7 Documentation & Training	
		1.7.1 User Manual
		1.7.2 Staff Training
		1.7.3 User Training

3.3.1 Work Breakdown Structure Dictionary

WBS Code	WBS Name	Description
1.1	Project Management	Overseeing/managing the project.
1.1.1	Project Planning	Development of project scope and initial project outline.
1.1.2	Communication Management	Development of communication channels and feedback/change systems.
1.1.3	Risk Management	Identification of risks and development of strategies to mitigate and monitor risks.
1.2	Product Requirements	Gathering project requirements.
1.2.1	Gather requirements	Engaging with stakeholders through qualitative/quantitative research methods to obtain project requirements.
1.2.2	Document Analysis	Reviewing project requirements obtained.
1.2.3	Analyse Compliance Requirements	Review PDPA and compliance requirements.
1.3	Design	Design of the app's functionality, database & UI.
1.3.1	Functional Design	Designing the app's specified functions.
1.3.2	Database Design	Designing data flow and new database.
1.3.3	UI Design	Designing UI of the app.
1.4	Construct	Developing all components of the app.
1.4.1	Core Features Development	Development of online order system, home delivery & in-store pickup.
1.4.2	Additional Features Development	Development of personalised pet recommendations, live chat support & order tracking.
1.4.3	Compliance Features Development	Development of data encryption, data consent system, data access/correction/deletion features & data sharing controls.
1.5	Testing	Testing if the app meets requirements.
1.5.1	Functional Testing	Comprehensive testing of the features.
1.5.2	Compliance Testing	Test PDPA compliance & regular security tests.
1.5.3	User Acceptance Testing	Test the app with its intended audience.
1.6	Product Deployment	Obtain stakeholder approval & release the app.

1.7	Documentation & Training	Creating material for users and staff.
1.7.1	User Manual	Guide for users.
1.7.2	Staff Training	Training staff on using and supporting users within the app.
1.7.3	User Training	Training users on using the app.

3.4 Scope Validation

To ensure that the project is meeting requirements, a scope validation process will be put in place to ensure that the progress of the project is satisfactory and aligns with the outlined project scope. The process includes:

1. **Iterative Review:** Reviews are conducted after achieving each milestone to ensure that the project is aligned with the scope and acceptance criteria.
2. **Stakeholder Approval:** Users/stakeholders are also constantly informed through communication channels of the project's progress. This allows them to build confidence within the project and provide formal acceptance.
3. **Update Project Documents:** If the project is derailed and requires adjustments, these are updated and documented in project documents.

3.5 Scope Control

Scope control will also be in place to monitor and manage the changes made to the project's scope. Changes are processed according to the procedures developed within the change control system. This includes:

1. **Change Request (CR) Submission:** CRs are submitted through a form in which the description, reasons, and impact on scope, schedule, and budget are included.
2. **Change Control Board Review:** The change control board, which consists of key stakeholders and project managers, reviews the change.
3. **Documentation:** All change requests will be documented. Approved changes will be discussed with the related parties and project documents will be updated.
4. **Monitoring:** After changes have been approved, the project manager will monitor the change updates to prevent any scope creep.

4. Schedule Management

4.1 Schedule Management Plan

Schedule Management Plan	
Project Schedule Model Development	The schedule will be developed using a Gantt chart. A critical path is then determined using an AOA diagram. The model will then be monitored and referred to throughout the project to ensure milestones and activities are completed on time.
Scheduling Methodology	The schedule first follows the WBS to decompose the project into manageable components. This is then used in the AOA diagram, which will be employed to understand the dependencies of each activity. Finally, the CPA will be used to identify the optimal sequence of tasks.
Level of Accuracy & Units of Measurement	● Task duration level of Accuracy: ±10% ● Activities Unit of Measurement: days
Control Thresholds	A 5% threshold of the total project duration will be implemented.
Rules of performance measurement	Earned Value Management (EVM) will be used to measure project performance. The formula for schedule variance is SV= EV-PV where positive SV indicates that we are ahead of the schedule, and negative SV suggests stronger actions to get the product done on time.
Reporting Formats	● Use a Gantt chart to keep track of the project's progress. ● Weekly standup meetings
Process Descriptions	● Set clear goals and objectives for each project phase. ● Outline activities using WBS ● List tools and techniques to be used in each process

4.2 Activity List

ID	Activities	Description	Constraints	Assumptions
A	Project Planning	Define & develop project scope and plan.	-	-
B	Requirement Analysis	Gather & document requirements	Stakeholder availability.	Requirements are clear and stable.
C	Functional Design	Design app's function.	Approval from stakeholders.	Minimal changes arise.
D	Database Design	Design app's database.	Approval from stakeholders.	Minimal changes arise.
E	UI Design	Design app's interface.	Approval from stakeholders.	Minimal changes arise.
F	Core Features Development	Develop core app features.	Integration with existing system.	-
G	Additional Features Development	Develop additional features.	Integration with existing system.	-
H	Compliance Features Development	Develop compliance features.	Integration with existing system.	-
I	Testing	Conduct functional, compliance and UAT testing.	-	-
J	Deployment	Finalise app & deploy on app stores.	Approval from stakeholders & stores	-
K	Documentation & Training	Provide support and guides for users & staff.	-	-

4.3 Milestones

Milestones	Description	Completion Date
Project planning completion	Project scope is defined & project plan is developed.	30/10/2023
Getting formal approval on product requirements	Stakeholders have approved project requirements.	31/12/2023
Design specification completed	All components of design have been completed.	31/03/2024
Feature development completed	All features have been developed.	30/06/2024
Testing completion	All testing phases are conducted, and app is compliant with PDPA.	31/07/2024
Deploy the product	App is deployed into the market.	30/09/2024

4.4 Gantt Chart

PetWorld Mobile App

PetWorld Inc.

TASK	START	END	DURATION (days)
Project Management			
Project Planning	10/1/23	10/30/23	29
Product Requirements			
Requirements Analysis	11/1/23	1/1/24	61
Design			
Functional Design	1/1/24	4/1/24	91
Database Design	1/1/24	4/1/24	91
UI Design	2/1/24	4/1/24	60
Construct			
Core Features Development	4/1/24	7/1/24	91
Additional Features Development	4/1/24	7/1/24	91
Compliance Features Development	4/1/24	7/1/24	91
Testing	6/1/24	8/1/24	61
Deployment	8/1/24	9/30/24	60
Training	9/1/24	9/30/24	29
= MILESTONE		365	days

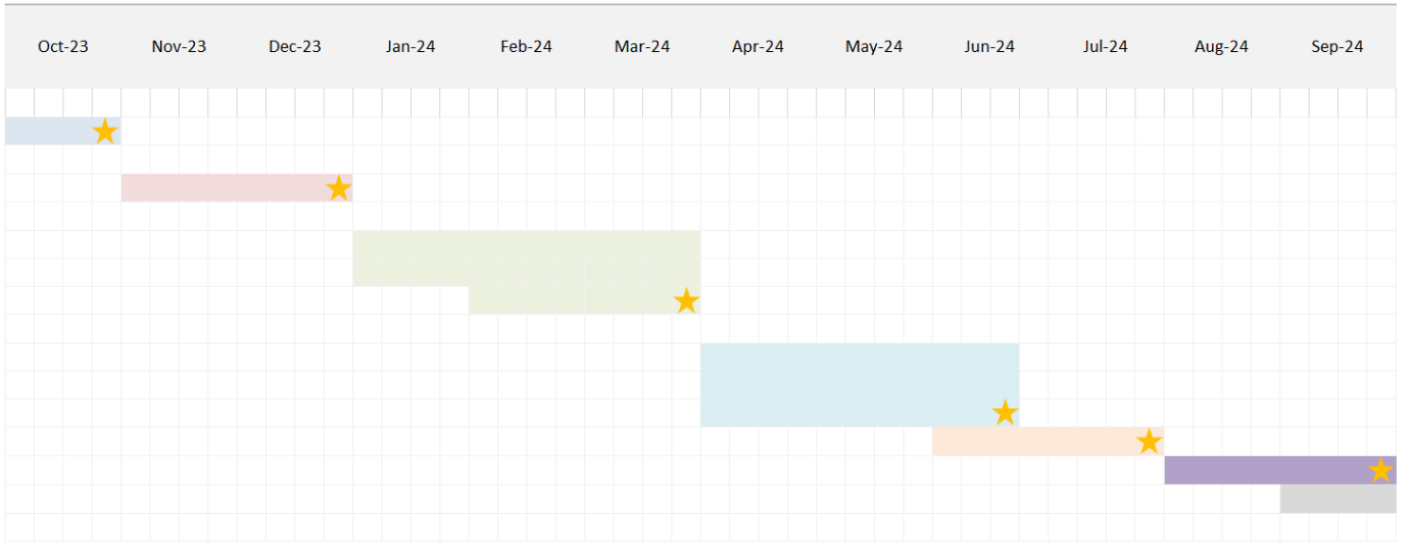

Figure 2: PetWorld Mobile App Project Gantt Chart

4.5 Network Diagram & Critical Path

A network diagram has been derived, which notably outlines the dependencies of the completion of all stages of design and development before reaching the next stage. Through **Figure 3**, we are able to derive the critical path, which displays the longest sequence of activities that must be completed. The critical path includes: A,B,C,D,E,F,G,H,I,J; totalling 726 days. Notably, activities C,D,E & F,G,H are occurring simultaneously, but because of the dummy activity line connecting them to the next node, they are too counted into the critical path.

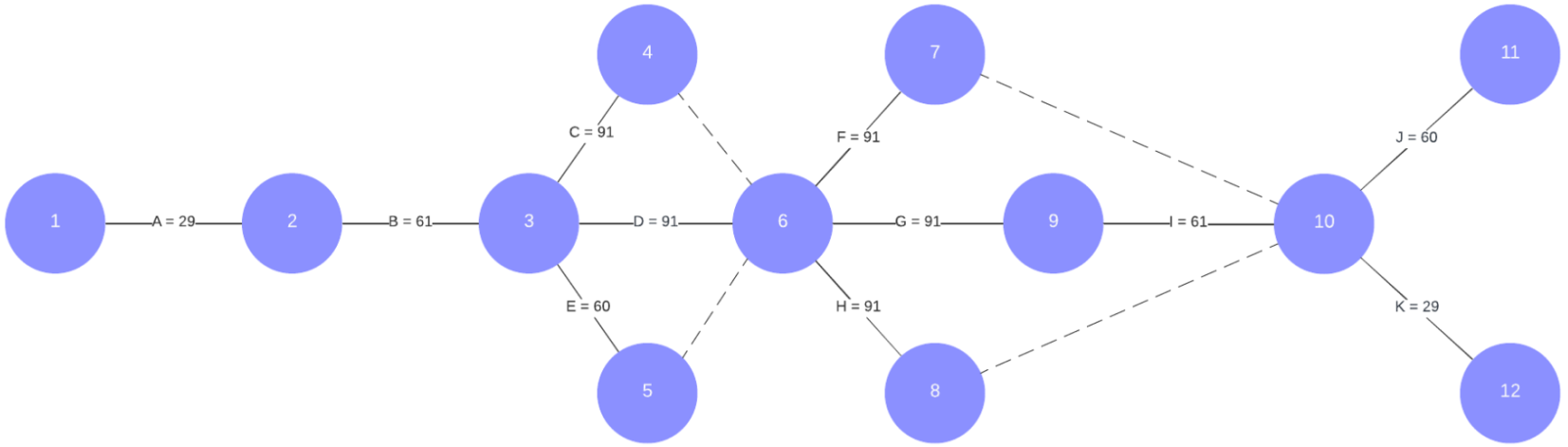

Figure 3: PetWorld Mobile App Network Diagram

4.6 Schedule Control & Validation

Our team will stay updated with the schedule by applying the following strategies:

1. **Schedule change control system:** any changes to the schedule must get formal approval from the change control system.
2. **Contingencies plan:** We will allocate an extra 1 week for a contingency plan to mitigate the risks of project failure due to unforeseen issues such as shortage of resources, technical failure, or regulatory changes.
3. **Variance analysis:** Variance analysis can be used to calculate the total amount of time a task can be delayed without impacting the project's final delivery date.
4. **Progress meeting:** This meeting will inform key stakeholders about any schedule updates to alleviate any fears and boost stakeholder confidence.
5. **Reality check:** Work will be assigned realistically and ensured that no one is overloaded with deadlines. Moreover, we will estimate the completion time based on everyone on the team's approval of activities.

5. Cost & Quality

5.1 Cost Management

Our team has developed a comprehensive cost management strategy for PetWorld's project to ensure it remains within budget. This strategy includes detailed cost estimates and budgeting, which have been detailed below.

5.1.1 Estimates

Observing **Figure 4**, for the cost estimates, our team utilised the WBS to perform an in-depth analysis of all project costs. We followed a bottom-up approach whereby our cost estimates were aggregated from the task-level estimates to form our total project cost estimate. Contingency reserves of 15% were also included in this calculation to cover unforeseen expenses and control risks. Furthermore, the estimates also include an additional budget of $300,000 to account for the change request to comply with the PDPA. This gives PetWorld an estimated total cost of $1.25m, saving approximately $48k of its budget for other business activities.

Cost Estimate

Assumptions	
Hourly Rates	
Project Management	$ 100.00
Product Requirements	$ 80.00
Design	$ 75.00
Construct	$ 90.00
Testing	$ 70.00
Product Deployment	$ 90.00
Document and Testing	$ 60.00
Budget	
Original Budget	$ 1,000,000.00
Original Budget + Compliance Budget	$ 1,300,000.00
Reserve	15.00%

WBS Items	#Units/Hrs	Cost/Unit/Hr	Subtotal	WBS Level 2 Totals	% of Total
1. Project Management				**$ 130,000.00**	10.38%
1.1 Project Planning	500	$ 100.00	$ 50,000.00		
1.2 Communication Management	400	$ 100.00	$ 40,000.00		
1.3 Risk Management	400	$ 100.00	$ 40,000.00		
2. Product Requirements				**$ 168,000.00**	13.42%
2.1 Gather Requirements	900	$ 80.00	$ 72,000.00		
2.2 Document Analysis	400	$ 80.00	$ 32,000.00		
2.3 Analyse Compliance Requirements	800	$ 80.00	$ 64,000.00		
3. Design				**$ 176,250.00**	14.08%
3.1 Functional Design	1,000	$ 75.00	$ 75,000.00		
3.2 Database Design	700	$ 75.00	$ 52,500.00		
3.3 UI Design	650	$ 75.00	$ 48,750.00		
4. Construct				**$ 310,500.00**	24.80%
4.1 Core Features Development	1,500	$ 90.00	$ 135,000.00		
4.2 Additional Features Development	1,000	$ 90.00	$ 90,000.00		
4.3 Compliance Features Development	950	$ 90.00	$ 85,500.00		
5. Testing				**$ 172,000.00**	13.74%
5.1 Functional Testing	750	$ 70.00	$ 52,500.00		
5.2 Compliance Testing	600	$ 70.00	$ 42,000.00		
5.3 User Acceptance Testing	400	$ 70.00	$ 28,000.00		
6. Product Deployment	550	$ 90.00	$ 49,500.00		
7. Documentation & Training				**$ 132,000.00**	10.54%
7.1 User Manual	700	$ 60.00	$ 42,000.00		
7.2 Staff Training	750	$ 60.00	$ 45,000.00		
7.3 User Training	750	$ 60.00	$ 45,000.00	**$ 45,000.00**	3.59%
Subtotal			$ 1,088,750.00		
6. Reserve (15% of total estimate)			$ 163,312.50	**$ 163,312.50**	13.04%
Total project cost estimate			$ 1,252,062.50		

Figure 4: Project Cost Estimates

5.1.2 Planning

Examining **Figure 5**, the budget was then allocated across a 12-month period ending 30 September 2024, based on the previously calculated cost estimates. This phased approach allows PetWorld to better track and manage its expenses throughout the project lifecycle.

Cost Baseline (Created September 2023)

	Months												
WBS Items	1	2	3	4	5	6	7	8	9	10	11	12	Totals
1. Project Management													
1.1 Project Planning	$ 16,666.67	$ 16,666.67	$ 1,666.67	$ 1,666.67	$ 1,666.67	$ 1,666.67	$ 1,666.67	$ 1,666.67	$ 1,666.67	$ 1,666.67	$ 1,666.67	$ 1,666.67	$ 50,000.00
1.2 Communication Management	$ 20,000.00	$ 1,818.18	$ 1,818.18	$ 1,818.18	$ 1,818.18	$ 1,818.18	$ 1,818.18	$ 1,818.18	$ 1,818.18	$ 1,818.18	$ 1,818.18	$ 1,818.18	$ 40,000.00
1.3 Risk Management	$ 13,333.33	$ 13,333.33	$ 1,333.33	$ 1,333.33	$ 1,333.33	$ 1,333.33	$ 1,333.33	$ 1,333.33	$ 1,333.33	$ 1,333.33	$ 1,333.33	$ 1,333.33	$ 40,000.00
2. Product Requirements													
2.1 Gather Requirements		$ 43,200.00	$ 28,800.00										$ 72,000.00
2.2 Document Analysis		$ 9,600.00	$ 22,400.00										$ 32,000.00
2.3 Analyse Compliance Requirements		$ 32,000.00	$ 32,000.00										$ 64,000.00
3. Design													
3.1 Functional Design				$ 25,000.00	$ 25,000.00	$ 25,000.00							$ 75,000.00
3.2 Database Design				$ 17,500.00	$ 17,500.00	$ 17,500.00							$ 52,500.00
3.3 UI Design					$ 24,375.00	$ 24,375.00							$ 48,750.00
4. Construct													
4.1 Core Features Development							$ 45,000.00	$ 45,000.00	$ 45,000.00				$ 135,000.00
4.2 Additional Features Development							$ 30,000.00	$ 30,000.00	$ 30,000.00				$ 90,000.00
4.3 Compliance features development							$ 28,500.00	$ 28,500.00	$ 28,500.00				$ 85,500.00
5. Testing													
5.1 Functional Testing									$ 21,000.00	$ 15,750.00	$ 15,750.00		$ 52,500.00
5.2 Compliance Testing									$ 16,800.00	$ 12,600.00	$ 12,600.00		$ 42,000.00
5.3 User Acceptance Testing									$ 11,200.00	$ 8,400.00	$ 8,400.00		$ 28,000.00
6. Product Deployment											$ 14,850.00	$ 34,650.00	$ 49,500.00
7. Documentation & Training													
7.1 User Manual												$ 42,000.00	$ 42,000.00
7.2 Staff Training												$ 45,000.00	$ 45,000.00
7.3 User Training												$ 45,000.00	$ 45,000.00
Totals	$ 50,000.00	$ 116,618.18	$ 88,018.18	$ 47,318.18	$ 71,693.18	$ 71,693.18	$ 108,318.18	$ 108,318.18	$ 157,318.18	$ 41,568.18	$ 56,418.18	$ 171,468.18	**$1,088,750.00**

Figure 5: Project Cost Baseline Created September 2023 *(Assumption)*

5.2 Quality Management

5.2.1 Quality Control

To ensure that the PetWorld app meets high-quality standards, our objective is to monitor specific project outcomes to ensure that they comply with the relevant quality standards. Therefore, in accordance with the ISO 9000 standards, a three-part continuous cycle quality management plan has been developed to guarantee that the project meets the expectations of stakeholders (ISO 2021).

1. **Planning:** Before the project begins, a formal, systematic inspection of deliverables at all stages will occur. For example, regular checks that the app design and implementation meets PDPA regulatory requirements (e.g., mandatory data encryption for pet and owner information, user consent requirements for processing pet health data, etc.).
2. **Controlling:** A strict testing procedure will be implemented to validate the app's performance, functionality, compliance with regulation, and security. This will be done continuously throughout the project to rectify issues promptly. Further, a group of end-users (i.e., internal and external customers) will be engaged to confirm that the app meets their needs and expectations.
3. **Documenting:** On the project management dashboard, an additional dashboard system will be set up to log, prioritise, and manage defects identified during reviews and testing. Additionally, the aforementioned weekly review meetings (*see section 2.3*) will monitor project progress and resolve critical quality issues quickly.

From the above quality management plan, PetWorld can determine whether the project deliverables meet its quality standards and can be accepted. The company can also identify project deliverables that do not meet its quality standards and, consequently, make the necessary adjustments to improve quality and enhance stakeholder satisfaction.

6. RAID/Risk Management

6.1 RAID Rating & Categorisation (Risk Register)

In assessing risk, we addressed environmental, company, and project-specific risks. A risk register is created to systematically identify, evaluate, and manage potential risks that could impact the project's success. This ensures that the project team is prepared to mitigate negative outcomes proactively. For brevity, this report focuses on project-specific risks as outlined below, providing a detailed overview of potential challenges and corresponding response strategies to ensure the project's timely and successful completion.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk Owner	Probability	Impact	Status
R1	2	Scope creep	Because of multiple stakeholder requests, continuous requests for additional features might occur, leading to project delays and budget overruns.	scope risk	Multiple stakeholder requests	Frequent change requests	Implement strict change control processes, prioritise original project requirements, put a hold on additionally requested features, and maintain regular scope reviews.	Project Manager	High	High	Ongoing
R2	8	Vendor breakup	Because of dependence on TechBuild, the separation from TechBuild either through firing or vendor decision, might negatively impact project delivery, leading to project delays and quality issues.	Supplier risk	Misaligned expectations and communication issues	Frequent disputes, miscommunication	Improve collaboration and communication with TechBuild; Regularly review and align expectations; Mediation if necessary to ensure symbiotic relationship.	Project Manager	Low	High	Ongoing
R3	6	Time slippage	Because of extended scope and compliance changes, delays in project milestones might occur, leading to overall project timeline slippage.	Schedule risk	Extended scope and compliance changes	Missed milestone deadlines	Project management dashboard; Hybrid methodology; Change control system; Implementing catch-up plans	Project Manager	Medium	High	Ongoing
R4	5	Team fallout	Because of poor team morale and high-stress levels, the risk of the entire project team disbanding or leaving might occur, leading to significant project disruptions and knowledge gaps.	People risk	Poor team morale, high-stress levels, poor leadership	High turnover, resignation letters	Develop knowledge transfer plan; Strengthen team retention strategies i.e. provide incentives and support and facilitate team-building activities.	HR & Project Manager	High	High	Ongoing
R5	3	Budget overrun	Because of scope changes and compliance requirements, project costs might exceed the original budget, leading to financial strain.	Cost risk	Scope changes, compliance requirements, improper cost control measures	Exceeding budget forecasts	Implement cost control measures and reserves (contingency & management)	Finance Manager	High	High	Ongoing
R6	1	Non-Compliance with Pet Data Protection Act	Because of the substantial rework to the app's architecture and database design needed to comply with PDPA; failure to meet new PDPA requirements might occur leading to legal issues and fines.	Compliance risk	Poor compliance practices	PDPA fines	Prioritise compliance in scope; Adjust project timeline accordingly, Allocate additional resources for compliance changes or utilise reserve budget	Project Manager, Legal team	High	High	Ongoing
R7	7	Breaching SOW	Because of non-compliance with SOW terms, breaching the Statement of Work might occur, leading to legal ramifications and financial penalties.	Legal risk	Non-compliance with SOW terms	Delays, non-delivery of agreed features	Prioritise strict adherence to SOW; Regular legal reviews; Address issues promptly to avoid breaches.	Project manager, Legal team	Medium	High	Ongoing

R8	4	Communication breakdown	Because of fragmented and unclear communication channels, requests are being sent directly to Techbuild, leading to misaligned objectives and delays.	communication risk	Fragmented communication channels	Inconsistent project updates	Enhanced communication cadences (daily stand-ups, weekly status meetings with project manager); Project management dashboard; Formal and informal communication	Project manager	High	High	Ongoing

6.2 Probability/Impact Matrix

Key risks have been incorporated into a probability-impact matrix below (**Figure 6**). Relative to the risk register, this categorises risks based on their likelihood of occurrence and potential impact on the project. This allows us to facilitate targeted mitigation strategies by prioritising risks based on their probability and impact on project outcomes, enabling an informed and efficient allocation of resources for the careful management of risks.

Figure 6: Probability/Impact Matrix

6.3 Mitigation of Risks

After extensive analysis of the risk register and matrix, our team has decided to focus on risk mitigation as part of our risk response plan. In doing so, the team has categorised the risks into four core dimensions of focus, followed by general mitigation suggestions, as outlined below. For more granular mitigation strategies, refer to their related “potential responses” in the risk register.

Company risk	People/supplier risk	Scope risks	Schedule risk
Prioritise PDPA compliance and Increase resource allocation towards achieving compliance, adjusting project timeline accordingly Clearly establish a project manager and define their role, ensuring all feature requests are made through them and they have the necessary authority to make critical decisions. Adopt a holistic communication strategy to establish and improve communication between stakeholders, especially TechBuild, emphasising all features must be communicated through the project manager. Establish contingency and management reserves.	Increase team support and retention strategies and minimise conflict with Techbuild through regular reviews and alignments of expectations.	Implement a strict change control process and prioritise original project requirements, putting a hold on additional requested features. Improve understanding of SOW, prioritising adherence and increasing frequency of reviews, allocating resources accordingly.	Increase the frequency of project monitoring and use critical path method to adjust schedule and allocate resources accordingly.

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