



S2 2023 Part 2 Scope, Schedule, Budget, and Risk Management Plans

Hype's Project Plan: Part 2



The BTS Label

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Executive Summary

- Introduction

This project comprises two essential phases: First, the Weverse landing page will be redesigned to enable SM Entertainment's artists to interact with their fans effectively. Second, the existing Weverse platform system requires redevelopment and integration with the Kakao platform to allow the distribution and sale of personalized merchandise.

The project team consists of one project manager, one business analyst, one cyber security specialist, one UI designer, two senior software developers, two software developers, and two senior user acceptance testers, and two user acceptance testers.

- Purpose

The business purpose of this project is to facilitate a strategic collaboration between Kakao and SM Entertainment. This collaboration will enable SM Entertainment artists to leverage the Weverse platform, while Hybe can utilize Kakao's platform services for merchandise distribution and sales.

- Project Governance

Hybe's Enterprise Architects requires the project governance framework contain cybersecurity standards, including zero trust architecture, shift left and V-Testing framework. We further include the general IT standards, PMBoK, BABOK and local coding standards in Korea, Melbourne, and the US.

- Project Planning Overview

Scope – The Weverse landing page will be redesigned to display different companies and artist, a new customisable K-pop E-commerce merchandise service will be introduced. To facilitate collaborate with Kakao, Zero-Trust Architecture will be implemented for authentication and authorisation. DevSceOps Model will be adopted for the project.

Schedule – The key milestone dates are as follow:

Key milestones	Dates
Project start date	01 August 2023
Setup Development Database server	03 August 2023
Complete Landing Page Layout (Redesigned Weverse Landing Page)	15 September 2023
Complete Landing Page Layout (Customisable K-pop Merchandise Service)	26 September 2023
Complete Sorting Function	24 October 2023
Complete Filter Function	24 October 2023
Complete product customisation	27 October 2023
Application of OAuth 2.0 to Weverse	17 November 2023
Integration User Stories and Final Testing	15 December 2023
Setup Production Database server	21 December 2023
Project completion date - release final product	27 December 2023

Budget – The total budgeted cost of this project is approximately USD810k, comprising primarily of USD387k for labour costs, USD101k for software costs and USD70k for recruitment fee.

Risk Register – The overall risk rating for this project is moderate and an estimation of AUD\$148,099 (equivalent to approximately USD99k) risk management cost is required for the whole project. Risk register, risk matrix and PESTLE framework are used for the risk management process.

- Next Step

The project plan will be handed to project sponsors for approval.

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1. Report Purpose and Discussion Scope

The purpose of this report is to further develop and expand the groundwork laid in the previous planning report. The prior planning report covered the proposed project team structure, project governance, stakeholder management, communication, and human resource management. This report will discuss further into the execution phase, focusing on scope, schedule, budget, and risk management plans.

2. Scope Management Plan

2.1 Planning Assumptions

- The scope management plan only covers conceptual design model.
- Other non-security, non-functional requirements are system objects that are covered in the existing system, thus not required in the conceptual design.
- The project will use an OAuth 2.0 application that has already installed in the development and operation environments.
- The project will be developed in Microsoft Windows, but it will be compatible to other operating systems.
- The project will use the data hosting and migration services from Kakao for development and operation environments.
- Only one sprint of operation activities is needed for setting up and populating the development and production database onto servers.
- The project will adopt Kakao platform for K-pop merchandise customisation.
- Agile Scrum and V-Testing Framework are applied in the Software Development Life Cycle (SDLC).
- Each system package is assumed to have two sprints.
- The first sprint of each non Kakao-related system package includes System Testing and Integration Testing. Kakao-related system packages will include System Testing and Security Testing in the first sprint.
- System Testing, Integration Testing, Security Testing and User Acceptance Testing will be performed in the second sprint of each system package and the final testing.
- The project is expected to enhance competitive advantage from the collaboration with Kakao and generate revenue from the customisable merchandise.
- Integrated Agile Governance will be integrated in software development to optimise business outcome (Qumer, 2007).

2.2 Planning Methods & Techniques

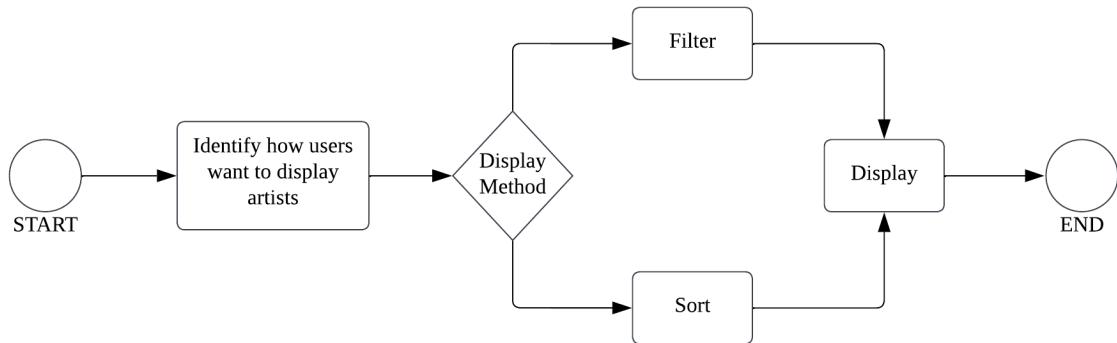
Requirement analysis and document analysis are performed to identify the functional and non-functional requirements of the project. Business Process Modeling Notation (BPMN) is used for designing the conceptual process models, and Unified Modeling Language (UML) is used for designing the entity relationship diagram. Requirements Traceability Matrix (RTM) is developed to ensure project requirements are satisfied (PMI, 2017). Scope decomposition is used for creating Work Breakdown Structure (WBS). Besides development activities, operations activities are taken into consideration when planning the work scope.

2.3 Product Scope

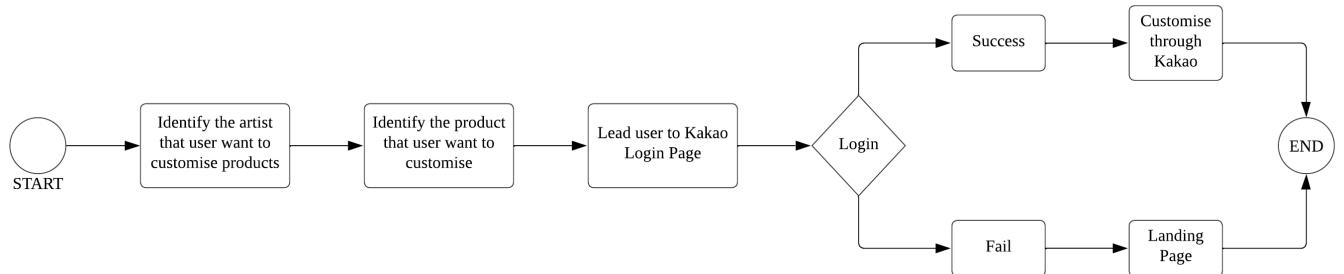
Document analysis is performed to analyse the business case statement and identify functional and non-functional requirements of the project. Architecture-driven software development model is adopted for this project. It ensures the software design models align with the business and strategic requirements (Schmidt, 2013). Conceptual modelling is used for visualising the functional and non-functional requirements.

Functional Requirement(s)
1. Redesign the Weverse Landing Page
2. Develop a customisable K-pop Merchandise E-commerce service for different artists
Non-Functional Requirement(s)
1. Zero Trust API Function for user authentication and authorisation
System Object(s) and Description(s)
1. Weverse landing page Graphical User Interface (GUI) It handles user interactions and contains components like button for sorting and filter function.
2. Weverse landing page sorting function It manages the sorting functionality of the Weverse landing page. It provides user to sort by companies or artists' name.
3. Weverse landing page filter function It manages the filter functionality of the Weverse landing page. It provides user to filter by companies or artists' name.
4. Weverse customisable merchandise landing page GUI It handles user interactions and displays customisable products to users.
5. Merchandise customisation service through Kakao platform It interacts the Kakao platform API and allows users to customise products using Kakao platform.
6. Weverse login function with Kakao authentication It is the authentication service for logging in Weverse with a Kakao account.

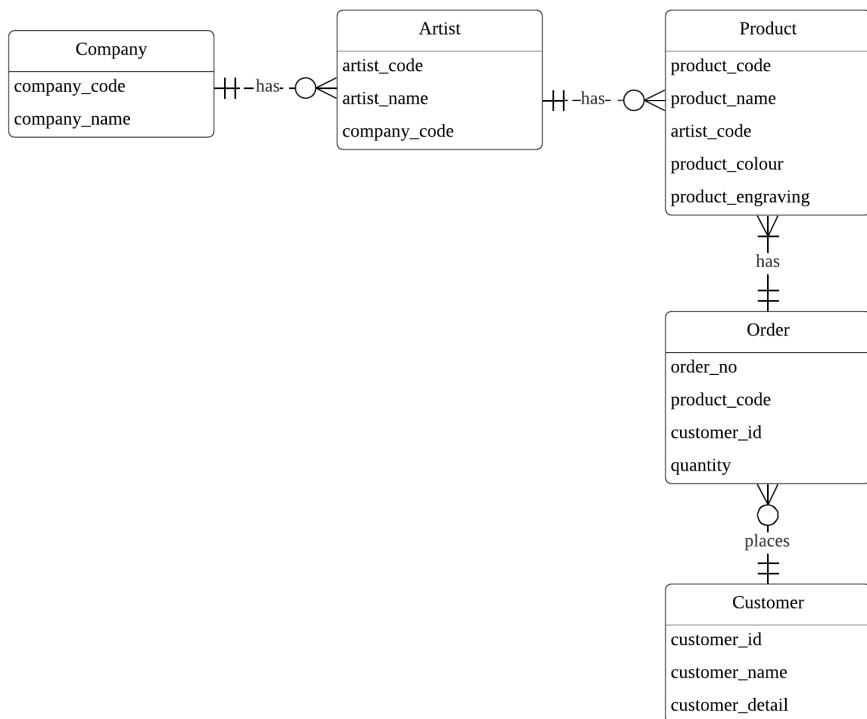
Conceptual Process Model for the Weverse Landing Page



Conceptual Process Model for the Customised K-pop Merchandise



Entity Relationship Diagram



Wireframed layouts of the GUI:

The image displays four wireframed layouts of a GUI for Weverse, arranged in a 2x2 grid.

- Promotion Header:** A light gray header section containing the Weverse logo and a "Sign In" button. Below it is a "Promotion Header" section.
- Artist Poster:** A light gray header section containing the Weverse logo, "Artist Name", and a "Sign In" button. Below it is an "Artist Poster" section.
- Product Detail:** A light gray header section containing the Weverse logo and a "Sign In" button. The main content area includes a large "Product picture" placeholder, "Product name" and "Price" fields, and sections for "Colour:" and "Engraving:". It also features a "PRODUCT DETAIL" heading and an "Add to Cart" button.
- Weverse Account Log In:** A light gray header section containing the Weverse logo and a "Sign In" button. The main content area includes "Email:" and "Password:" fields, a "Sign In" button, and a "Sign in using Kakao" button.

Requirement Traceability Matrix (RTM)										
Project Title: Hybe Weverse Project										
Requirement Information					Relationship Traceability					
ID	Requirement	Source	Priority	Category	Business Objectives	Deliverable	Verification	Validation	GUI	Database
1.1	User should be able to locate artists from different companies in landing page	Platform Program Director, Project Team	Level 1	Functional	Redesigned Weverse Landing Page	1-A Landing Page Layout	The deliverable will be tested according to test scripts, ensuring no error before rolling out.	Ask users to locate artists from different companies. Ex: Recruit Weverse users to locate different artists	Weverse Landing Page	- company - artist
1.2	User should be able to sort artists by company or artist name	Platform Program Director, Project Team	Level 1	Functional	Redesigned Weverse Landing Page	1-B Sorting Function	The deliverable will be tested according to test scripts, ensuring no error before rolling out.	Ask users to trial the sorting function. Ex: Recruit Weverse users to sort artists by company or artist name	Weverse Landing Page	- company - artist
1.3	User should be able to filter artists by company or artist name	Platform Program Director, Project Team	Level 1	Functional	Redesigned Weverse Landing Page	1-C Filter Function	The deliverable will be tested according to test scripts, ensuring no error before rolling out.	Ask users to trial the filter function. Ex: Recruit Weverse users to filter artists by company or artist name	Weverse Landing Page	- company - artist
2.1	User should be able to locate customisable products in landing page	Platform Program Director, Project Team	Level 1	Functional	Customisable K-pop Merchandise	2-A Landing Page Layout	The deliverable will be tested according to test scripts, ensuring no error before rolling out.	Ask users to locate customisable products. Ex: Recruit Weverse users to locate customisable products by artists or companies.	Product Landing Page	- company - artist - product - customer - order
2.2	User should be able to use Kakao Platform to customise K-pop Merchandise	Platform Program Director, Project Team	Level 1	Functional	Customisable K-pop Merchandise	2-B Adoption of Kakao Platform for Merchandise Customisation	The deliverable will be tested according to test scripts, ensuring no error before rolling out.	Ask users to trial the customisation function in Kakao platform. Ex: Recruit Weverse users to use Kakao platform to customise K-pop merchandise	Product Detail Page	- company - artist - product - customer - order
3.1	User should be able to use Kakao Accounts to login Weverse	Platform Program Director, Project Team	Level 1	Nonfunctional	Weverse/ OAuth System Interface	3-A Application of OAuth 2.0 to Weverse	The deliverable will be tested according to test scripts, ensuring no error before rolling out.	Ask users to trial the Weverse/ OAuth system interface. Ex: Recruit Kakao users to use Kakao accounts to login Weverse.	Login Page	customer

2.4 Work Scope

Software Development Life Cycle (SDLC) includes Analysis, Design, Coding, Testing and Maintenance (de Vicente Mohino et al., 2019). Analysis involves defining and documenting the user requirements, validating conceptual models, and creating requirements traceability matrix (RTM). Design involves developing and validating logical and physical models, RTM will be updated accordingly. Coding involves writing codes based on the requirements, and unit testing will also be performed. Various testing phases will be conducted in Testing, like system testing, integration testing, user acceptance testing and security testing. To ensure the software deploys successfully, operational activities, for instance maintenance and setting up database servers, are needed to be performed. Maintenance includes processes to track performances, detect problems and fix issues. Database servers' setup for development and production are essential.

Agile Scrum is used for the SDLC. The advantages of using Agile Scrum instead of traditional waterfall model are better control in project schedule, adaptability to changes and risk reduction (de Vicente Mohino et al., 2019; Mahalakshmi & Sundararajan, 2013). Result from a case study illustrated the benefits of using Agile Scrum, which includes time and cost savings, and higher efficiency resulted from faster deliverables (Azanha et al., 2017).

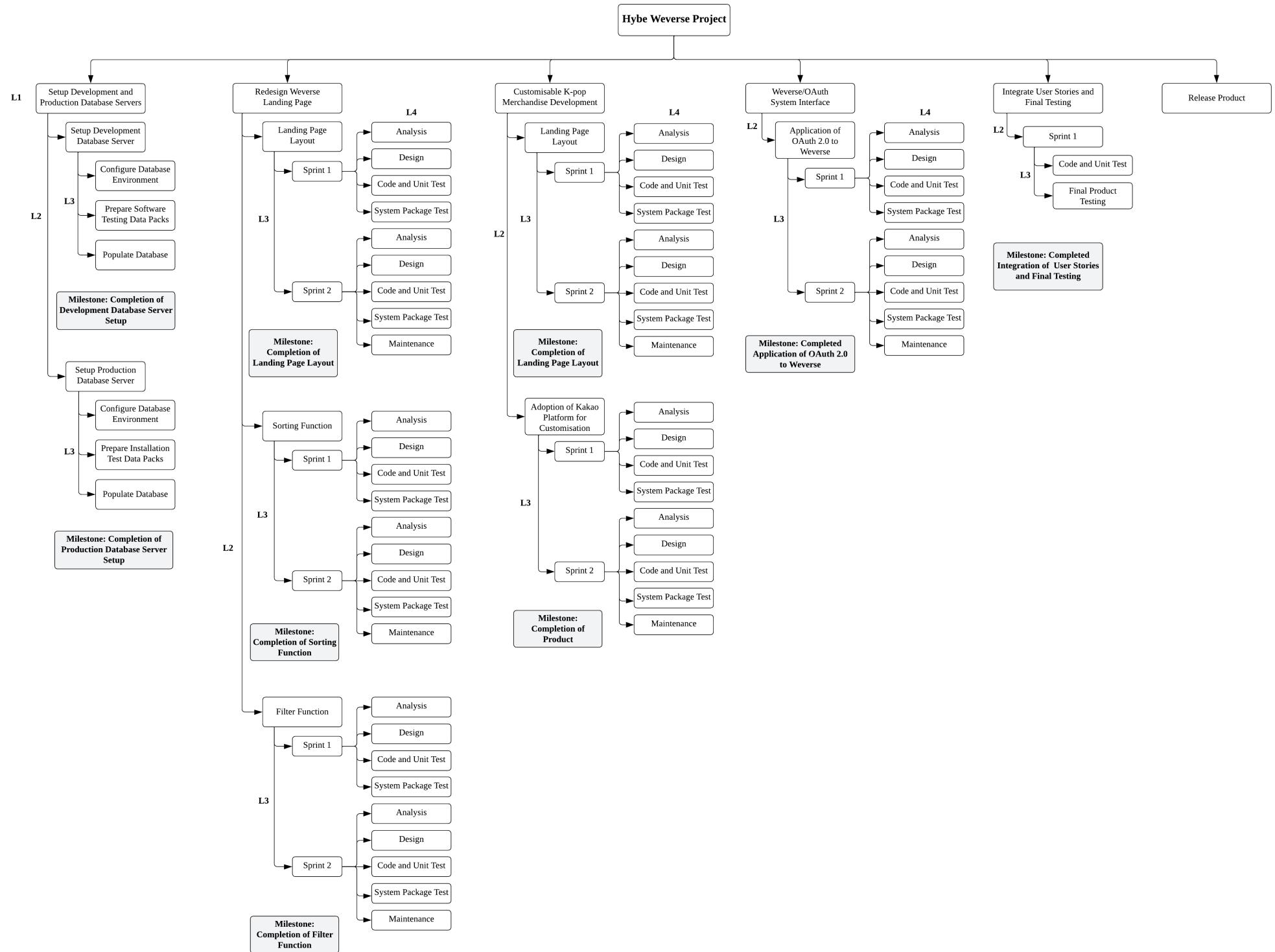
Product-based Work Breakdown Structure (WBS) is used for this project. Before starting to develop the products, setting up development database server is required.

The Weverse landing page will then be redesigned, this user story consists of three system packages, which are the layout of landing page, sorting function and filter function.

Next, customisable K-pop merchandise will be designed, it consists of two system packages, landing page layout and adoption of Kakao platform for customisation.

After that, the Weverse/OAuth system interface API function will be developed, it only consists of one system package, which is the application of OAuth 2.0.

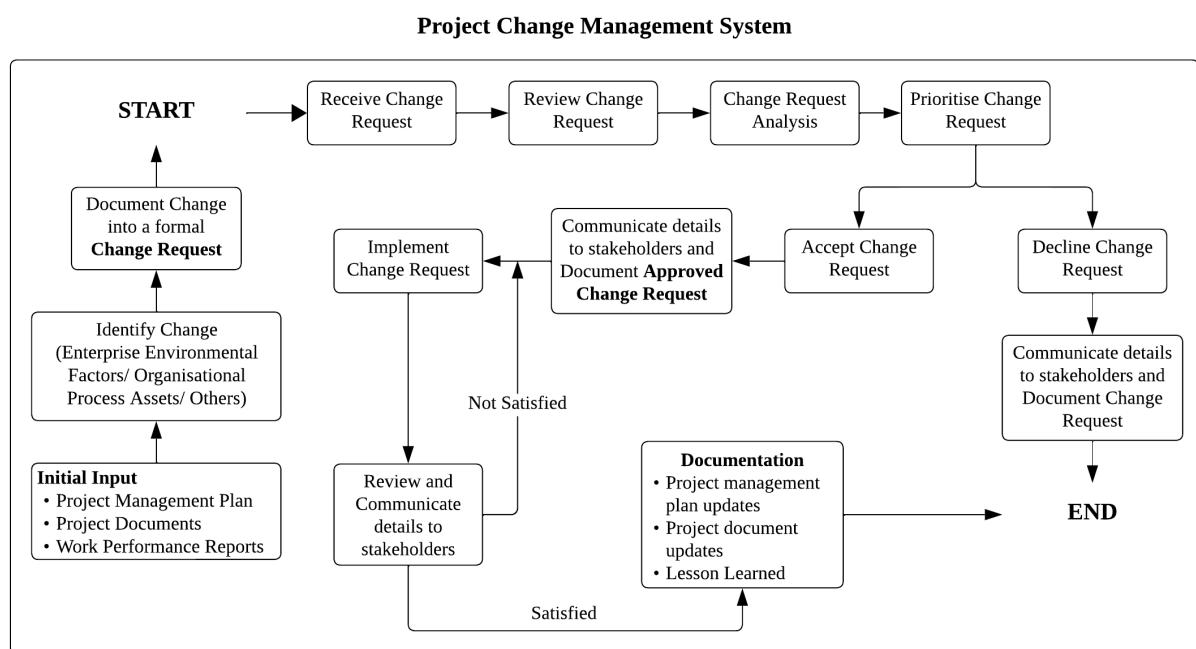
Each system package includes two sprints. Subsequently, the user stories will be integrated, and final testing will be performed. Ultimately, the product will be released after the production database server is set up.



2.5 Scope Estimation Accuracy

The product and work planning details are estimated to provide a 75% accuracy. Our project team is experienced and proficient in completing projects and developing software. We have analysed and researched on the project-related requirements and technologies, so that the project scope is planned objectively. Despite the comprehensive planning done, some uncertainties lower the accuracy of the scope estimation. For instance, there are possibilities that changes in business or technological regulations occur, causing the requirements of the project alter and hence affect the scope. Our team will keep track of the project progress and undertake necessary actions to diminish potential risks. Regular communication with stakeholders will be organised to ensure stakeholders are involved.

2.6 Project Change Management System



CHANGE REQUEST			
Project Title:	Date Prepared:		
Requestor:			
Category:			
<input type="checkbox"/> Scope	<input type="checkbox"/> Quality	<input type="checkbox"/> Requirements	
<input type="checkbox"/> Cost	<input type="checkbox"/> Schedule	<input type="checkbox"/> Documents	
Detailed Description of Proposed Change			
<input type="text"/>			
Justification for Proposed Change			
<input type="text"/>			
Impacts of Change			
Scope	<input type="checkbox"/> Increase	<input type="checkbox"/> Decrease	<input type="checkbox"/> Modify
Description: <input type="text"/>			
Quality	<input type="checkbox"/> Increase	<input type="checkbox"/> Decrease	<input type="checkbox"/> Modify
Description: <input type="text"/>			
Requirements	<input type="checkbox"/> Increase	<input type="checkbox"/> Decrease	<input type="checkbox"/> Modify
Description: <input type="text"/>			
Cost	<input type="checkbox"/> Increase	<input type="checkbox"/> Decrease	<input type="checkbox"/> Modify
Schedule	<input type="checkbox"/> Increase	<input type="checkbox"/> Decrease	<input type="checkbox"/> Modify
Description: <input type="text"/>			
Stakeholder Impact	<input type="checkbox"/> High Risk	<input type="checkbox"/> Low Risk	<input type="checkbox"/> Medium Risk
Description: <input type="text"/>			
Project Documents			
<input type="text"/>			
Comments			
<input type="text"/>			
Disposition:	<input type="checkbox"/> Approve	<input type="checkbox"/> Defer	<input type="checkbox"/> Reject
Justification			
<input type="text"/>			

Take changing the scope of a project as an example. During execution, end users identify the need in changing the scope of a project, for instance request to add a customisable user interface (UI). They need to complete a formal change request as shown above, obtained from the Book of Forms (Snyder Dionisio, 2017), and submit it to the project team. Once received the change request, the project team will undergo the above project change management system. Documents such as approved change request, project management plan updates and lesson learned will be produced and communicated with stakeholders (Arain, 2008; PMI, 2017).

The change request will be reviewed by the project team through meetings or other communication methods. Impact and feasibility of the change request will be accessed, and priority will be set. Data analysis like alternative analysis and cost-benefit analysis will be performed (PMI, 2017). Project manager will make decision according to the review, analysis, and priority of the change request. Approved change request will be implemented till the stakeholder is satisfied with the change and change logs will be documented. Communication to the stakeholder who requested the change will take place regardless of the approval of the change request.

In the process of managing project change, there are risks leading to scope creep. In the case of adding a customisable UI, this change request might be caused by the desire to obtain the best possible solution and falls under the “Beyond Plan” category summarised by Shmueli and Ronen (2017). On the other hand, the change request might be caused by inadequate communication with stakeholders stated by Ajmal et al. (2020), resulting in incomprehensive project scope. This change request will lead to scope creep, which PMI (2017) defined as “the uncontrolled expansion to project scope”, as the original project scope does not include this new feature. Consequently, it causes increase in project cost, delay in delivering products (B. Komal et al., 2020), which directly affects the project budget and schedule.

Section Summary:

The project scope management plan covers planning assumptions, methods and techniques, project scope, work scope, estimation accuracy and project change management system. The project scope includes designing Weverse landing page, developing customisable K-pop merchandise, and integrating Kakao to Weverse through OAuth 2.0. The scope serves as the basis for the project schedule and budget management plans, which will be discussed in the following sections.

3. Schedule Management Plan

3.1 Planning Assumptions

The project is scheduled to start on 1st August 2023 and complete on 27th December 2023, spanning a total of 106 working days. The schedule was planned by hours in a Gantt Chart, and all project members are expected to contribute eight hours per day (approximately five productive working hours) from Monday to Friday.

The project is organised into five user stories, including setting up development and production database servers, redesigning the Weverse landing page, combining new service to the Weverse website, implementing OAuth 2.0, and conducting final testing. To receive timely feedback from users, V-testing is employed to combine testing in early deliverables. Additionally, the final testing phase involves the integration of all user stories and a comprehensive V-testing of the entire project to enhance the project success.

The project complies to agile scrum methodology. It is indicated that each iteration usually comprises two to four sprints, and each sprint must be completed before the subsequent one commences. Typically, each sprint lasts for a duration of two to four weeks, ensuring the delivery an entirely tested and high-quality incremental product (Hobbs & Petit, 2017). Considering the project constraints, most of the deliverables within five user stories require two sprints for completion, with each sprint spanning two to three weeks. Nevertheless, some user stories, perceived as less complex, can be accomplished with a single sprint. It enables the project team to operate with more efficiency and effectiveness to fulfill the business objectives.

The personnel's cost is covered by the total budget of USD \$ 1 million from the Hybe company. The project consists of twelve key members, including a project manager, a business analyst, a cybersecurity specialist, a UI designer, four software developers, and four testers, with the guide and support of senior-level supervisors. The software engineers and the testers are recruited externally, bringing diverse experiences and valuable expertise to the team.

The project schedule may need to be adjusted due to changes in scope or budget. In consideration of such alterations, a time buffer of one week is reserved as a contingency, ready to be deployed when there are any modifications about the project.

3.2 Planning Methods & Techniques Applied

Agile scrum methodology is a dynamic approach, characterised by iterative and incremental processes. It embraces changes throughout the project lifecycle, resulting in the delivery of incremental project updates and valuable user feedback at the conclusion of each iteration (Hobbs & Petit, 2017). Agile projects usually operate for three to six months within a higher-level timeline, shaped by the product vision and roadmap (PMI, 2017). The methodology is applied to establish the schedule plan, with a duration of nearly five months.

This project schedule adheres to the work breakdown structure (WBS) which offers a holistic perspective of the necessary deliverables and activities in each sprint. By aligning with the WBS, the schedule is anticipated to flow more smoothly and structurally.

Dependency diagram, specifically Program Evaluation and Review Technique (PERT), is employed in this project. Dependencies refer to the connections between tasks or activities, where the completion of one task relies on another. Thus, the utilisation of a dependency diagram is a strategic choice to oversee and regulate the project efficiently, leveraging the predefined schedule and budget (Al-Natour & Cavusoglu, 2009). Moreover, it also helps to prevent production delays, with a focus on coordinating the various components of the project to achieve its overall completion.

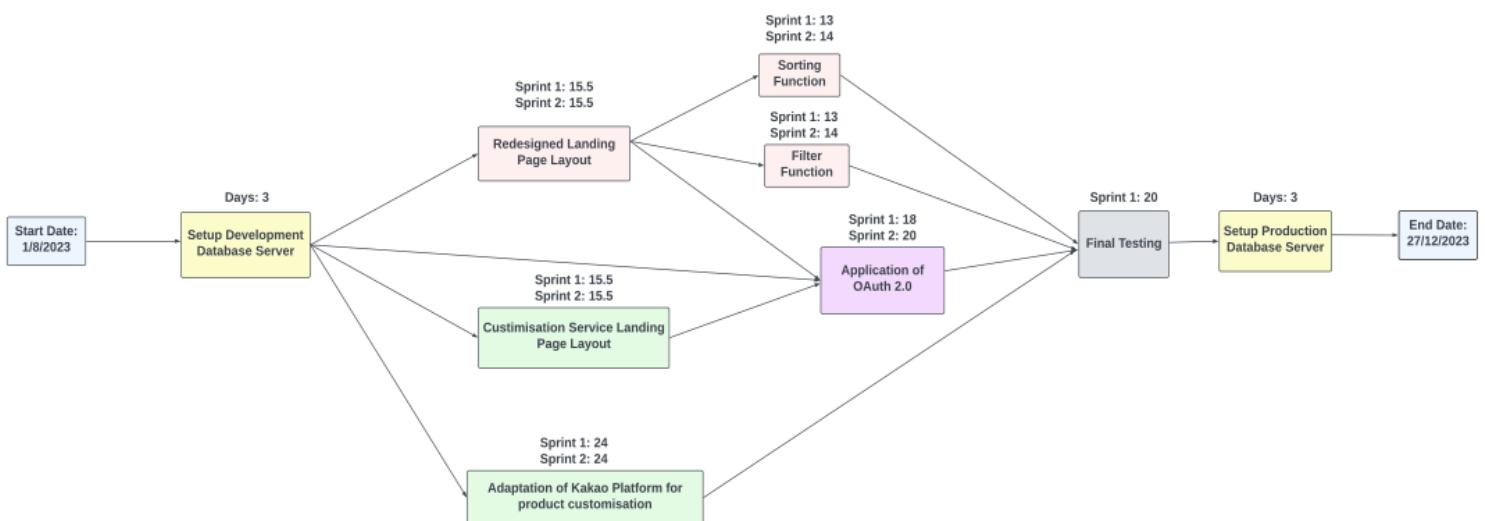
The Gantt Chart is a powerful tool that offers comprehensive schedule information, enhancing the supervision and tracking of tasks and resources within the project. It displays the project's timeline, outlining each task, and assigning responsible personnel. The Gantt Chart plays a crucial role in assisting project teams to comprehend the project's status, monitor the completion rates of individual tasks, and ensure that the project stays on course (Sharon & Dori, 2017).

Schedule compression refers to the process of reducing the project schedule duration without changing the project scope (PMI, 2017). This is applied to fulfill schedule constraints, meet project deadlines, or accomplish schedule-related objectives. Fast-tracking and crashing techniques are used in the schedule planning to compress the schedule.

Critical Path Method (CPM) is integral for establishing the shortest project duration and assessing the flexibility of logical network pathways based on the schedule model. This tool equips project teams with enhanced insights into the limitations that impact time and resource allocation.

3.3 Schedule Dependency (PERT) Diagram

The primary purpose of a dependency (PERT) diagram is to present the flow of project tasks, allowing to analyse the critical path, estimate project duration and foresee the potential risks. Moreover, it helps in planning, scheduling, and controlling projects by illustrating task sequences and their interdependencies (Wang, 2013).

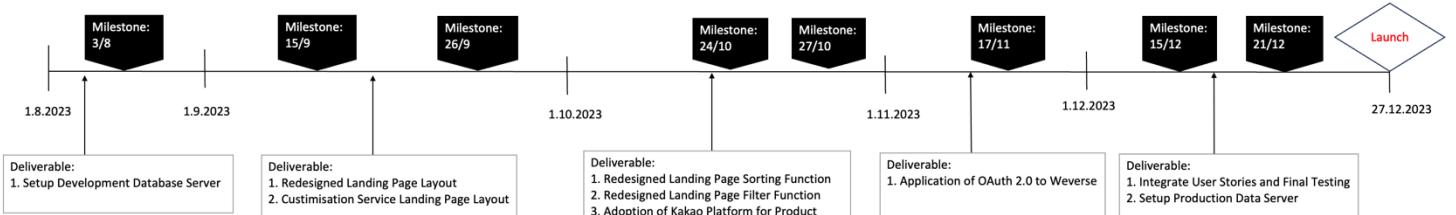


Activity	Predecessor
*Setup Development and Production Database	
1-A Setup Development Database Server	
1-B Setup Production Database Server	5-A
*Redesigned Weverse Landing Page	
2-A Landing Page Layout	1-A
2-B Sorting Function	2-A
2-C Filter Function	2-A
*Customisable K-pop Merchandise Service	
3-A Landing Page Layout	1-A
3-B Adoption of Kakao Platform for Product customisation	1-A
*Weverse / Oauth System Interface	
4-A Application of OAuth 2.0	2-A, 3-A
*Integrate User Stories and Final Testing	
5-A Final Testing	2-B, 2-C, 3-B, 4-A

This project is composed of five user stories, each comprising one or more activities or components (as indicated in the table above). The PERT diagram demonstrates the workflow of the entire project. The project starts from “Setup Development Database Server” (1-A). Subsequently, two user stories, “Redesigned Weverse Landing Page” and “Customisable K-pop Merchandise Service”, can be developed in parallel since they are not interdependent. Within “Redesigned Weverse Landing Page”, “Sorting Function” (2-B) and “Filter Function” (2-C) are contingent on “Landing Page Layout” (2-A), and they can be implemented simultaneously. “Customisable K-pop Merchandise Service” consists of two activities, “Landing Page Layout” (3-A) and “Adoption of Kakao Platform for Product customization” (3-B), which are independent of each other. “Application of OAuth 2.0” depends on the completion of both landing pages (2-A, 3-A). Once these components are finalised, “Final Testing” (5-A) commences and is followed by “Setup Production Database Server” (1-B).

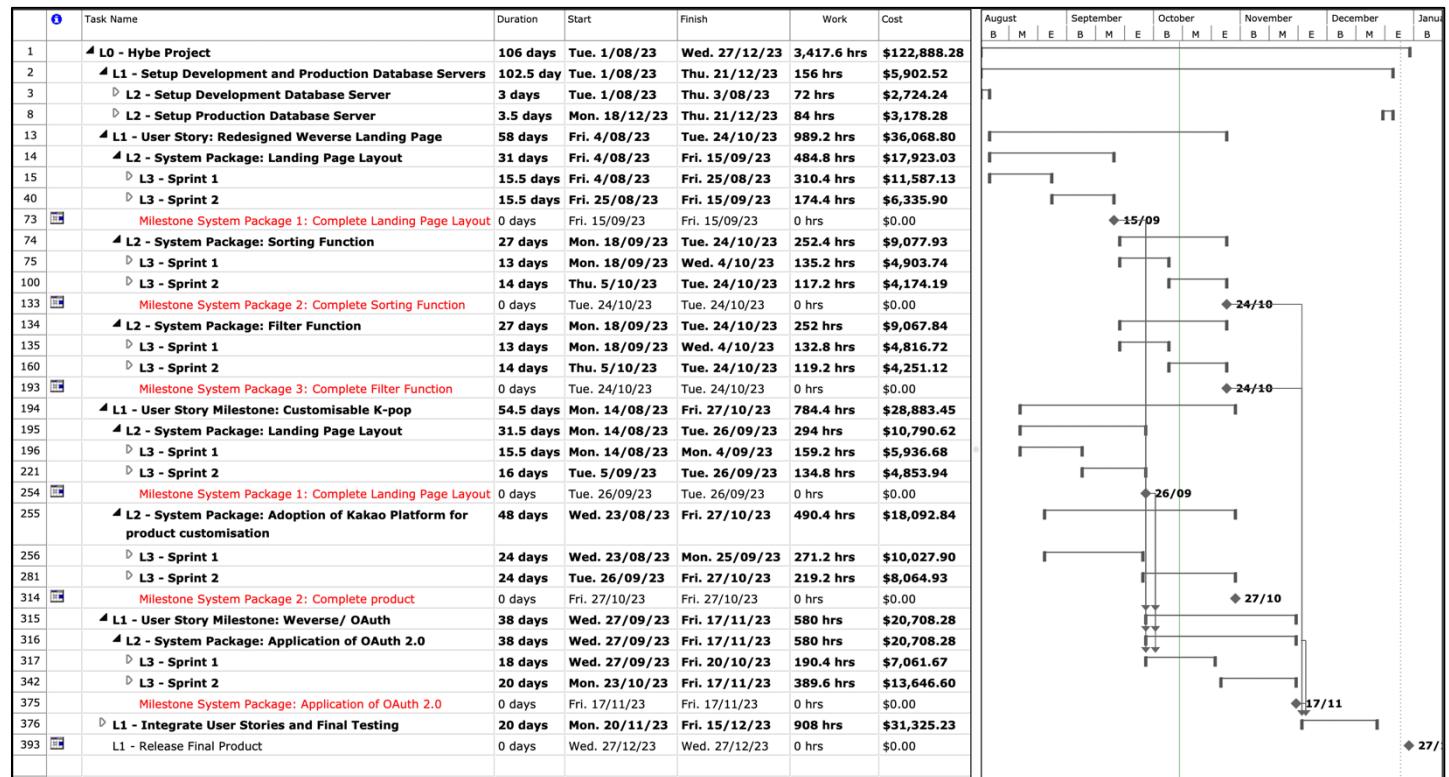
3.4 Schedule Timelines

Overview of Schedule Timeline:



Gantt Chart:

	 Task Name	Resource Names	Duration	Start	Finish	Work	Cost
1	▲ L0 - Hybe Project		106 days	Tue. 1/08/23 8:00 AM	Wed. 27/12/23 8:00 AM	3,417.6 hrs	\$122,888.28
2	 L1 - Setup Development and Production Database Servers		102.5 day	Tue. 1/08/23 8:00 AM	Thu. 21/12/23 12:00 PM	156 hrs	\$5,902.52
13	 L1 - User Story: Redesigned Weverse Landing Page		58 days	Fri. 4/08/23 8:00 AM	Tue. 24/10/23 5:00 PM	989.2 hrs	\$36,068.80
194	 L1 - User Story Milestone: Customisable K-pop		54.5 days	Mon. 14/08/23 1:00 PM	Fri. 27/10/23 5:00 PM	784.4 hrs	\$28,883.45
315	 L1 - User Story Milestone: Weverse/ OAuth		38 days	Wed. 27/09/23 8:00 AM	Fri. 17/11/23 5:00 PM	580 hrs	\$20,708.28
376	 L1 - Integrate User Stories and Final Testing		20 days	Mon. 20/11/23 8:00 AM	Fri. 15/12/23 5:00 PM	908 hrs	\$31,325.23
393	 L1 - Release Final Product		0 days	Wed. 27/12/23 8:00 AM	Wed. 27/12/23 8:00 AM	0 hrs	\$0.00

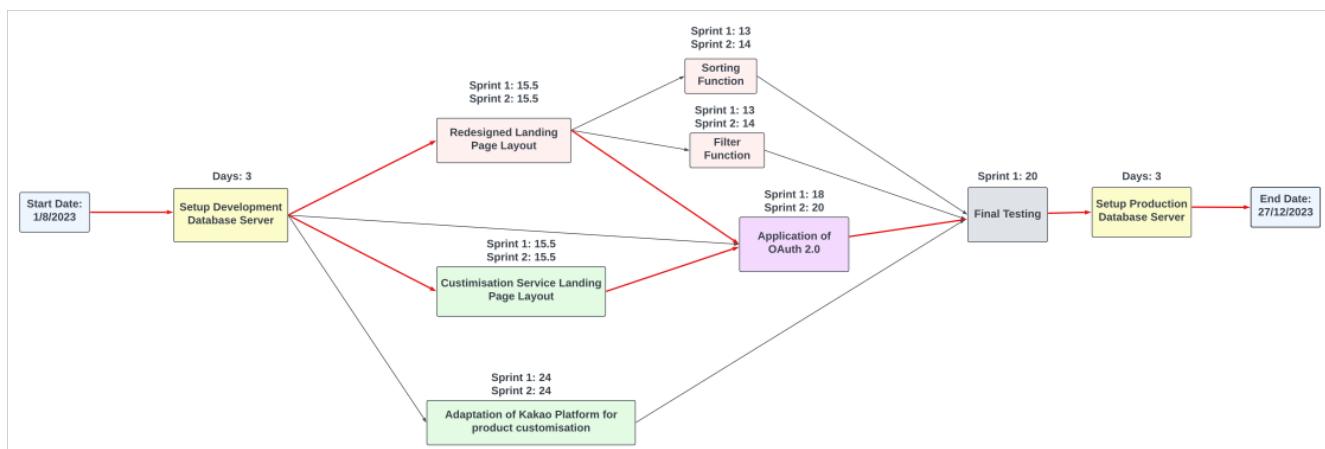
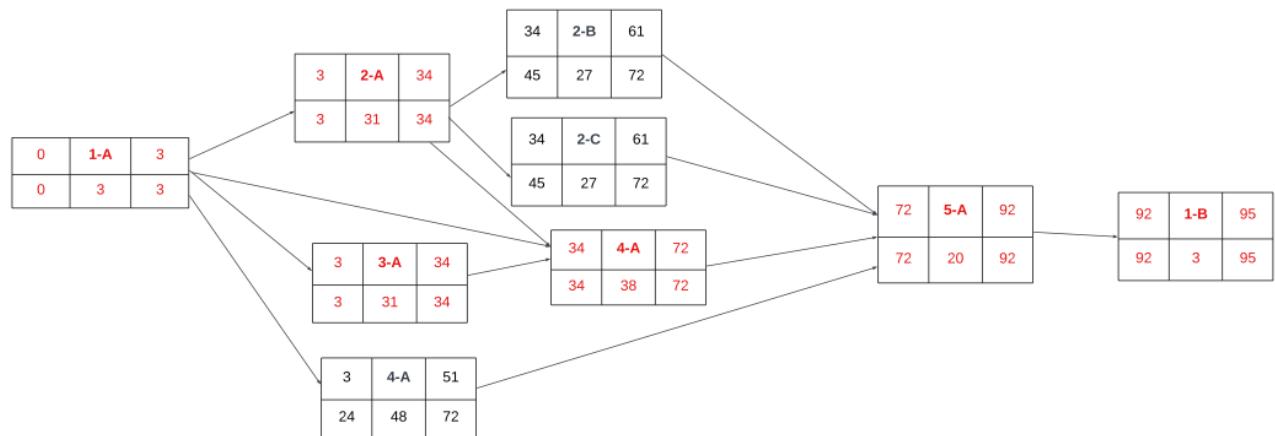


The Gantt Chart shows WBS of the project's activities, structured into five distinct levels, each offering a detailed description of its respective category of activities. At Level 0, the Hybe project is outlined, while Level 1 delineates the five user stories. Level 2 displays the activities in each user story, while Level 3 delves into the sprints for each activity. Level 4 encompasses the phases in SDLC, and Level 5 involves the individual tasks within each phase.

In addition, the Gantt Chart illustrates crucial information related to duration and resources, such as start dates, finish dates, and cost. To meet the schedule constraints, the fast-tracking and crashing techniques are adopted, which includes overlapping tasks and adding new resources respectively (Lee et al., 2007). The resource allocation is based on the fast-tracking schedule, ensuring that despite concurrent activities, personnel responsibilities are staggered to manage the workload effectively.

3.5 Critical Path Discussions

Activity	Predecessor	Duration
*Setup Development and Production Database		
1-A Setup Development Database Server		3
1-B Setup Production Database Server	5-A	3
*Redesigned Weverse Landing Page		
2-A Redesigned Landing Page Layout	1-A	31
2-B Sorting Function	2-A	27
2-C Filter Function	2-A	27
*Customisable K-pop Merchandise Service		
3-A Customisation Service Landing Page Layout	1-A	31
3-B Adoption of Kakao Platform for Product customisation	1-A	48
*Weverse / Oauth System Interface		
4-A Application of OAuth 2.0	2-A, 3-A	38
*Integrate User Stories and Final Testing		
5-A Final Testing	2-B, 2-C, 3-B, 4-A	20



The critical path assists in prioritising tasks and uncovering potential bottlenecks where the project timeline may be significantly affected by delays. According to the table and calculation above, the critical path of the Hybe project is depicted in the above diagram, highlighted in red lines. The path initiates with setup of development database server, then proceeds to the redesign of both landing page layouts, followed by the application on OAuth 2.0. It then reaches the final testing phase. Vigilantly tracking progress along the critical path offers valuable insights into the project's schedule status. Any delays encountered along the critical path directly affects the project's scheduled completion (PMI, 2017). Consequently, it allows to identify potential risks related to schedule planning by assessing the progress of activities along the critical path.

3.6 Schedule Estimation Accuracy

Estimating project duration can be challenging since several factors may influence project schedules, with nearly half of the projects are not finished on time (PMI, 2017). These influential factors include changes of scope, budget, and resources throughout the project lifecycle. Nevertheless, research also suggests that the application of effective project management practices can enhance estimation accuracy of project's schedules (Serrador & Pinto, 2015). Accordingly, our project team has a 75% confidence level in meeting the project deadline, given the adoption of various product management techniques and knowledge. However, there is a likelihood that the project will be completed ahead of the schedule deadline as a one-week buffer has been incorporated into the timeline. In the event of unforeseen challenges, the time buffer can be employed. Thus, by adhering to this schedule, the successful and timely completion of the project is highly anticipated.

Section Summary:

This section elaborates the scheduling management plan of the Hybe project. It covers the planning assumptions, the planning methods and techniques, visual illustration such as PERT diagram, Gantt Chart, and Critical Path, and an evaluation of schedule accuracy. It provides essential insights into project scheduling and offers the basis for the budget management plan in the next section, especially the working hours and resources.

4. Budget Management Plan

4.1 Planning Assumptions

Our budget items were identified according to the requirements mentioned in our previous project planning, covering project scope, human resources, scheduling, and risk factors. The cost estimation was primarily based on the current average market price from our research. The reporting currency of our budget would be USD, and the functional currencies would be AUD, USD, and EUR. The accuracy of the budget may be subject to future market conditions and exchange rates.

All other costing assumptions, constraints, and dependencies have been detailed in the following paragraphs.

Salaries and Wages

We anticipated full engagement from our engagement team, including Project Manager, Business Analyst, Cyber Security Specialist, User Interface Designer, User Acceptance Testers, and Software Developers. Their salaries are allocated to our budget on monthly basis.

On the other hand, the seconded and Hybe staff will only be brought in if the project requires their participation. Their hourly wages are allocated to our budget, corresponding to the estimated working hours on the Gantt Chart.

The salaries and wages were estimated according to the average market rate at Seek (annual salary divided by 12 months, 22 days per month, 8 hours per day). Project team members will not be entitled to overtime pay or bonus.

Unit labour charge-out rates for project team:

Position Title	Experience level	Metric	Metric	Market rate Reference
Sponsor	Senior	\$66.22	Per man hour	(Seek, n.d.a)
Platform Program Director	Senior	\$56.76	Per man hour	(Seek, n.d.b)
Enterprise Architect	Senior	\$56.76	Per man hour	(Seek, n.d.c)
Platform & Fans Engagement	Senior	\$50.45	Per man hour	(Seek, n.d.d)
Hybe Marketing & Promotion Manager	Senior	\$34.68	Per man hour	(Seek, n.d.e)
Programmer	Mid level	\$25.23	Per man hour	(Seek, n.d.f)
ICT Head	Senior	\$50.45	Per man hour	(Seek, n.d.g)
Ops Manager	Senior	\$34.68	Per man hour	(Seek, n.d.h)
Project Manager	Senior	\$7,214.75	Per month	(Seek, n.d.i)
Business Analyst	Mid level	\$6,104.79	Per month	(Seek, n.d.j)
Cyber Security Specialist	Mid level	\$6,104.79	Per month	(Seek, n.d.k)
User Interface Designer	Mid level	\$5,827.30	Per month	(Seek, n.d.l)
Senior User Acceptance Tester	Mid level	\$6,382.28	Per month	(Seek, n.d.m)
Senior Software Developer	Mid level	\$6,382.28	Per month	(Seek, n.d.n)
User Acceptance Tester	Junior	\$5,827.30	Per month	(Seek, n.d.m)
Software Developer	Junior	\$5,827.30	Per month	(Seek, n.d.n)

Statutory employee benefits

Since our project team comprises of members from different locations, we have made the following assumptions:

- Engagement team would fall under Australian regulations; and
- Seconded and Hybe staff would fall under South Korean regulations.

Statutory employee benefits	Metric	Metric	Reference
Superannuation (Australia)	11.00%	Per salaries	(Australian Taxation Office, 2023)
Pension contributions (South Korea)	4.50%	Per salaries	(PwC, 2023)
Premium for workers' compensation insurance (Australia)	1.272%	Per salaries	(Reid & Martin, 2023)
Premium for workers' compensation insurance (South Korea) - National Health Insurance (NHI) - Employment Insurance (EI) - Worker's Accident Compensation Insurance (WCI)	4.00% 1.75% 1.00%	Per salaries	(PwC, 2023)

The calculation of superannuation or pension contributions is determined by the local registration scheme.

The premiums for workers' compensation insurance were estimated according to the average of market rate in Australia and South Korea.

Software costs

The OAuth 2.0 app was purchased and will be billed to this project, and the remaining software costs would be incurred from the start of the project. We anticipate that only the User Acceptance Testers and Software Developers will be required to purchase the Visual Studio, GitLab and Microsoft 365 software. We assumed that the existing team members were equipped with the necessary software on their laptops.

Software costs	Metric	Metric	Reference
OAuth 2.0 app	\$35,000.00	1	
Data hosting & migration services from KAKAO	\$10,000.00	Per month	
MySQL Enterprise Edition Subscription (On-Premises, 1-4 socket server: 1 year)	\$4,565.72	1	(Oracle, n.d.)
Visual Studio enterprise subscription	\$250.00	Per user/month	(Microsoft, 2023a)
GitLab premium	\$29.00	Per user/month	(GitLab, 2023)
Microsoft 365 Business Standard	\$12.45	Per user/month	(Microsoft, 2023b)

Hardware costs

Each newly recruited staff will be provided with a laptop, desk, monitor and chair. All hardware will be purchased at the start of this project. We assumed that the existing team members were equipped with the necessary hardware.

Hardware costs	Metric	Metric	Reference
HP EliteBook 650 15.6-inch G10 Laptop (13th Generation Intel® Core™ i7 processor, 32 GB DDR4-3200 RAM, 1 TB SSD Hard Drive)	\$2,081.18	8	(HP, 2023)
Desk	\$266.39	8	(IKEA, n.d.a)
Monitor (LG 24ML600M 24" IPS Full HD Monitor 75Hz)	\$132.53	8	(JB Hi-Fi, 2023)
Chair	\$86.58	8	(IKEA, n.d.b)

Other costs

Other costs	Metric	Metric	Estimation base	Market rate reference
Recruitment fee	12%	Candidate's first year annual salary	The average of recruitment fees ranges from 15% to 25% of the candidate's first year annual salary (McGee, n.d.). Considering that our project is expected to complete within five months, and the newly recruited staff is likely to work for less than a full year. The estimated recruitment fee would be at 12% of their first-year annual salary.	
Rental	\$5,594.21	Per month	The median monthly rent for 11 to 15 person was reported as AUD700 per person (Rubberdesk, 2023).	
Utility	\$532.78	Per month	The average cost of electricity for small business in Australia range from AUD700 to AUD1,400 (Savvy, 2023).	
Training costs – newly recruited member	\$466.18	Per course	As stated in our previous training plan, there would be two training courses provided to engagement team upon the commencement of the project.	
Training costs – all team member	\$1,331.95	Per course		
Insurance for software developer			In alignment with our risk management plan, we will acquire software development insurance to mitigate potential losses resulting from data breaches or cyberattacks.	
- Commercial General liability insurance	\$19.98			(Pascoe, n.d.)
- Errors and omissions insurance	\$46.62			(Palmer, 2023)
- Cyber liability insurance	\$282.21	Per month		(Pascoe, n.d.)
Office Supplies	\$19.98	Per staff		
Traveling expense			We estimated that there would be two meetings in Seoul headquarter, a kick-off meeting in August 2023 and a project closure meeting in December 2023. For each of these meetings, we will allocate six team members to attend, and each staff will receive a travel allowance of AUD100 per each day.	
- Melbourne/Seoul return tickets	\$901.73	Per staff		(Cathay Pacific, n.d.)
- Hotel (One room)	\$119.88	Per staff each night		(Booking.com, n.d.)
- Travel allowance	\$66.60	Per staff each day		
Risk contingent provision	\$98,630.53		Refer to risk management planning	
Resource accuracy provision	5.00%	Total other costs	5% of resource accuracy provision is made for unexpected expenses.	
Exchange rate:				
- AUD to USD	0.665977	N/A	The exchange rates used for our budget calculations were based on the average of historical exchange rates from the past 12 months.	(OFX, n.d.)
- EUR to USD	1.068494			

4.2 Costing Methods & Techniques

In our budget planning, we have employed a bottom-up budgeting approach. Bottom-up budgeting involves reviewing individual items on a detailed list based on the project plan and allocating appropriate estimated time and cost for each item to the budget (Murray, 2016). We examined the project plan thoroughly with consideration of any relevant regulations in our budget planning to identify the project's necessary costs.

We have used a Gantt Chart for scheduling and calculating the working hours for salaries and wages estimation.

4.3 Budget Overview

The table below presents the budget overview for this project.

Budget overview		
In USD	Total	%
Initial total budget	1,000,000.00	
Direct costs		
Salaries and Wages	387,400.94	47.84
Software costs	101,223.87	12.50
Recruitment fee	70,327.18	8.68
Superannuation/Pension contributions	41,512.28	5.13
Hardware costs	20,533.40	2.54
Sub-total	620,997.66	76.69
Indirect costs		
Rental	27,971.03	3.45
Traveling expense	16,095.33	1.99
Insurance	7,600.18	0.94
Utility	2,663.91	0.33
Training costs	1,798.14	0.22
Office Supplies	239.75	0.03
Sub-total	56,368.35	6.96
Total direct costs and indirect costs	677,366.01	83.65
Risk contingent provision	98,630.53	12.17
Resource accuracy provision	33,868.30	4.18
Total estimated costs	809,864.84	100.00
Budget remaining	190,135.16	
Budget remaining (%)		19.01%

Our budget primarily comprises salaries and wages, risk contingent provisions, software expenses, and recruitment fees, collectively accounting for approximately 81.3% of the total estimated costs.

Salaries and Wages

In USD	No of staff	Budget	Gantt Chart		
		Total (a)	Total work (hrs)	Total costs (b)	Effective rate (b)/(a)
<u>Seconded and Hybe staff wages (per man hour)</u>					
Sponsor	2	\$0.00	-	\$0.00	n/a
Platform Program Director	1	\$3,053.69	53.80	\$3,053.69	100.0%
Enterprise Architect	2	\$3,167.21	55.80	\$3,167.21	100.0%
Platform & Fans Engagement	1	\$4,631.31	91.80	\$4,631.31	100.0%
Hybe Marketing & Promotion Manager	1	\$2,254.20	65.00	\$2,254.20	100.0%
Programmer	1	\$3,012.46	119.40	\$3,012.46	100.0%
ICT Head	1	\$0.00	-	\$0.00	n/a
Ops Manager	1	\$832.32	24.00	\$832.32	100.0%
Sub-total		\$16,951.19	409.80	\$16,951.19	100.0%
<u>Engagement team salaries (monthly)</u>					
Project Manager	1	\$36,073.75	243.80	\$9,993.36	27.7%
Business Analyst	1	\$30,523.95	166.40	\$5,770.75	18.9%
Cyber Security Specialist	1	\$30,523.95	263.80	\$9,148.58	30.0%
User Interface Designer	1	\$29,136.50	80.40	\$2,662.04	9.1%
Senior User Acceptance Tester	2	\$63,822.80	509.60	\$18,478.10	29.0%
Senior Software Developer	2	\$63,822.80	681.60	\$24,714.82	38.7%
User Acceptance Tester	2	\$58,273.00	410.60	\$13,594.97	23.3%
Software Developer	2	\$58,273.00	651.60	\$21,574.48	37.0%
Sub-total		\$370,449.75	3,007.80	\$105,937.10	28.6%
Total		\$387,400.94	3,417.60	\$122,888.28	31.7%

The salaries and wages include the engagement team's monthly salaries throughout the project duration and the seconded and Hybe staff wages billed on an hourly basis, as per the Gantt Chart.

In our schedule planning, we anticipated a peak workload from September to November, requiring the full utilization of our workforce, particularly for user acceptance testers and software developers. We also considered the potential unavailability of team members and allocated more back-up human resources. In contrast, August and December were designated as slack periods with a one-week buffer to account for other unforeseen contingencies. This approach resulted in a notable variance between our budget and the total costs displayed on the Gantt Chart, with an effective utilization rate as low as 28.6%.

Software costs

In USD	Total	%
Data hosting & migration services from KAKAO	\$50,000.00	49.4%
OAuth 2.0 app	\$35,000.00	34.6%
Visual Studio enterprise subscription	\$10,000.00	9.9%
MySQL Enterprise Edition Subscription (On-Premises, 1-4 socket server: 1 year)	\$4,565.72	4.5%
GitLab premium	\$1,160.00	1.1%
Microsoft 365 Business Standard	\$498.15	0.5%
Total	\$101,223.87	100%

The software costs mainly include service charge from KAKAO for data hosting and migration and OAuth 2.0 app for security.

Other costs

Other costs were estimated according to our planning assumptions. For details, please refer to the attached spreadsheet.

4.4 Budget by Time Periods

The table below presents the monthly budget overview.

Monthly budget overview							
In USD	Aug	Sep	Oct	Nov	Dec	Total	%
Initial total budget						1,000,000.00	
Direct costs							
Salaries and Wages	80,279.00	79,241.59	78,691.25	74,695.47	74,493.63	387,400.94	47.8%
Software costs	51,897.35	12,331.63	12,331.63	12,331.63	12,331.63	101,223.87	12.5%
Recruitment fee	70,327.18	-	-	-	-	70,327.18	8.7%
Superannuation/Pension contributions	8,428.40	8,381.72	8,356.95	8,177.14	8,168.06	41,512.28	5.1%
Hardware costs	20,533.40	-	-	-	-	20,533.40	2.5%
Sub-total	231,465.32	99,954.94	99,379.83	95,204.24	94,993.32	620,997.66	76.6%
Indirect costs							
Rental	5,594.21	5,594.21	5,594.21	5,594.21	5,594.21	27,971.03	3.5%
Traveling expense	8,047.67	-	-	-	8,047.67	16,095.33	2.0%
Insurance	1,708.93	1,638.91	1,601.77	1,332.10	1,318.47	7,600.18	0.9%
Utility	532.78	532.78	532.78	532.78	532.78	2,663.91	0.3%
Training costs	1,798.14	-	-	-	-	1,798.14	0.2%
Office Supplies	239.75	-	-	-	-	239.75	0.0%
Sub-total	17,921.47	7,765.90	7,728.76	7,459.08	15,493.13	56,368.35	6.9%
Risk contingent provision	19,726.11	19,726.11	19,726.11	19,726.11	19,726.11	98,630.53	12.3%
Resource accuracy provision	12,469.34	5,386.04	5,355.43	5,133.17	5,524.32	33,868.30	4.2%
Total estimated costs	281,582.24	132,832.99	132,190.13	127,522.60	135,736.88	809,864.84	100.0%
Budget remaining	718,417.76	585,584.77	453,394.64	325,872.04	190,135.16	190,135.16	
Budget remaining (%)	71.84%	58.56%	45.34%	32.59%	19.01%	19.01%	

Salaries and Wages

Monthly Salaries and Wages							
In USD	Aug	Sep	Oct	Nov	Dec	Total	%
Engagement team salaries (monthly)	74,089.95	74,089.95	74,089.95	74,089.95	74,089.95	370,449.75	95.6%
Seconded and Hybe staff wages (per man hour)	6,189.05	5,151.64	4,601.30	605.52	403.68	16,951.19	4.4%
Total	80,279.00	79,241.59	78,691.25	74,695.47	74,493.63	387,400.94	100.0%

The engagement team's salaries will remain constant throughout the project's duration, while the wages for the seconded and Hybe staff will vary in accordance with their working hours.

Software costs

Monthly software costs							
In USD	Aug	Sep	Oct	Nov	Dec	Total	%
Data hosting & migration services from KAKAO	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	50,000.00	49.4%
OAuth 2.0 app	35,000.00	-	-	-	-	35,000.00	34.6%
Visual Studio enterprise subscription	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	10,000.00	9.9%
MySQL Enterprise Edition Subscription (On-Premises, 1-4 socket server: 1 year)	4,565.72	-	-	-	-	4,565.72	4.5%
GitLab premium	232.00	232.00	232.00	232.00	232.00	1,160.00	1.1%
Microsoft 365 Business Standard	99.63	99.63	99.63	99.63	99.63	498.15	0.5%
Total	51,897.35	12,331.63	12,331.63	12,331.63	12,331.63	101,223.87	100.0%

The OAuth 2.0 app and MySQL subscription were one-off expenditures incurred in the beginning of the project, and the remaining software costs will remain constant throughout the project's duration.

Other recurring expenses

The Superannuation/Pension contributions and insurance costs will change based on salaries and wages. The rental and utility will remain stable throughout the project period.

Non-recurring expenses

The recruitment fee, hardware costs, training costs and office supplies will be incurred as one-time expenses at the beginning of the project. The traveling expenses will be incurred for a kick-off meeting in August 2023 and a project closure meeting in December 2023.

4.5 Budget Estimation Accuracy

The accuracy of our budget estimation stands at 85%. Our project team thoughtfully evaluated project requirements to determine our budget. Each item's estimation is supported by credible sources listed in our references. With an engagement team working at an effective rate of approximately 28.6%, the allocated budget for salaries and wages should be sufficient to complete the project. Considering the possible unexpected expenses, we included a 5% provision for resource accuracy within the total costs. Furthermore, we included approximately USD98.6k of risk contingent provision with necessary insurance to align with our risk management strategy.

Section Summary:

Our estimated total project cost is approximately USD810k, utilizing 81.0% of the allocated budget. The budget plan outlines the key expenses, including salaries and wages, software and recruitment costs, amounting to approximately USD559k. We have included a risk contingent provision of USD98.6k and a resource accuracy provision of around USD34k. The following section will discuss our risk management plan.

5. Risk Management Plan

5.1 Planning Assumptions/ Constraints & Dependencies

According to the PMBoK (2017), the term “risks” is referring to the prediction of troubles that have not occurred yet, while “issue” is referring to the consequences that the trouble prediction has occurred. The below are the assumptions, constraint, and dependencies of the risk management:

Assumptions:

- 1) If South Korea office is required to close due to political factors, assume they are required to stay in Melbourne for the whole project period (5 months / 150 days).
- 2) There is possibility of COVID-19 reoccurrence & two weeks quarantine is required for infected worker.
- 3) Cultural training cost has been included in the training budgeting.
- 4) The coverage of cyber liability insurance includes South Korea.
- 5) Market analysis and political analysis included in Business Analyst salary.

Constraint:

- 1) We initially allocated USD 200,000 (~AUD 313,300) for the risk management cost.
- 2) Project period no longer than 5 months.

Dependencies:

The planning of risk management for this project depends on the management plan of time, scope, and budget.

5.2 Risk Management Methodology

We have performed risk management planning with 3 methodologies: Risk Register, Risk Matrix, and PESTLE framework.

Risk Register:

Risk register is a useful method for accessing and identifying risk during the operation of the project. Risk Register not only provides tools for risk documentation and identification, but also helps prioritise risks and perform tracking during the whole project life cycle (PMI, 2017). Elements like risk owner, risk score and risk response strategy will be included for the identification as well as the mitigation of the potential risks. Please refer to section 5.5 for this project’s risk register.

Risk Matrix:

Risk matrix is a two-dimensional matrix in which the risk likelihood and risk severity is included in the matrix. In this report, both probability of risk and risk severity are scored from one to five. For the risk likelihood matrix, we are using the recommendation from Eclipse and follow the ESCC standards when deciding the criteria for level of risk likelihood matrix (2022):

- Very Low (1 out of 5) - less than 0.1%
- Low (2 out of 5) - 0.1% to 1%
- Moderate (3 out of 5) - 1% to 10%
- High (4 out of 5) - 10% to 99%
- Very High (5 out of 5) - 100%

The risk matrix could indicate the frequency and the impact of a potential risk so that it could assist with the problem and task prioritisation. The matrix used for risk management in this report is as follows:

Probability	Impacts				
	Very low (1)	Low (2)	Medium (3)	High (4)	Very high (5)
Very high (5)	5	10	15	20	25
High (4)	4	8	12	16	20
Medium (3)	3	6	9	12	15
Low (2)	2	4	6	8	10
Very low (1)	1	2	3	4	5

PESTLE framework:

PESTLE framework is an essential tool for assessing the risk or external factors that could affect a project or an organisation. The framework suggested 6 areas of aspect, which are political, economic, sociocultural, technological, legal, and environmental factors for brainstorming possible troubles during the project life cycle (50minutes, 2018). Please refer to section 5.3 for the risk assessment under PESTLE framework.

5.3 Risk Assessment (Severity Findings)

We are using PESTLE to perform risk assessments in this session and PESTLE is an analytical tool for evaluating risk on political, economic, sociocultural, technological, legal, and environmental (50minutes, 2018). Below is our risk assessment with the aspect in PESTLE:

Political:

According to the abcNEWS (2023), North Korea's political actions on nuclear weapons have intensified the tensions between North Korea and the world, especially South Korea. There is a risk of potentially leading to stricter government regulations or a war in South Korea. These consequences could give a significant risk to the project directly and hinder the operation of the project in the South Korea office.

Risk Identified	South Korea office's operation has been interrupted due to war in South Korea with North Korea
Risk Likelihood	The likelihood of stricter government regulations or war due to political tensions is relatively low (2 out of 5)
Risk Impact	The impact of stricter regulations / war on the Weverse platform could be severe, potentially hindering its operations significantly (5 out of 5)
Risk Severity Finding	The severity ranking for the risk related to stricter government regulations or war is 10 (Likelihood 2 × Impact 5 = 10)

Economic:

There is risk of economic downturns in any of the project locations, heightened by uncertainties in middle powers like Australia and Korea (Asia Society, 2021), might cut back consumer spending on digital content and merchandise, directly impacting revenue projections for the Weverse platform. This confluence of factors could lead to a challenging market environment for Hybe, necessitating strategic planning to maintain its competitive edge.

Risk Identified	Reduce on the Weverse platform project's market share due to economic downturn between Australia & South Korea
Risk Likelihood	Economic downturns are relatively likely (3 out of 5) given the global economic uncertainties
Risk Impact	The impact of economic downturns on reduced market share could be high(4 out of 5), leading to significant revenue losses
Risk Severity Finding	The severity ranking for the risk related to economic downturns, the severity ranking is 12 (Likelihood 3 × Impact 4 = 12)

Sociocultural:

The cultural challenges arising from the authoritarian nature of Korean society present a significant risk to the Hybe's Weverse project. The unique societal structure, characterised by a high-power distance (Hofstede, 2023), implies that communication within the organisational hierarchy might face obstacles. Effective communication is paramount in any project, especially one involving complex developments like the Weverse platform. Misunderstandings and delayed issue resolution could result from the hierarchical barriers, potentially hampering the project's progress. Moreover, failure to adapt the platform to local preferences and customs, as highlighted by the DataGuidance article on Cybersecurity in South Korea (2022), might lead to further misunderstandings and decreased user engagement.

Risk Identified	Project disruption due to South Korea's authoritarian culture on communication barriers
Risk Likelihood	The likelihood of facing challenges due to the high-power distance in Korean society is relatively high (4 out of 5) given the deep-rooted cultural norms
Risk Impact	The impact of communication barriers and misunderstandings could be very high (5 out of 5), significantly affecting project timelines and user engagement
Risk Severity Finding	The severity ranking for the risk of cultural challenges in Korean authoritarian culture is 20 (Likelihood 4 × Impact 5 = 20)

Technological:

According to Madni & Sievers (2014), system integration consists of different challenges including integration failure due to the system specification misunderstanding. Since the project involves integration with a new API system (OAuth2.0), there will be risk of encountering difficulties integrating OAuth2.0 with the existing platform, as a result system conflicts, or functionality gaps might occur and cause project delays.

Risk Identified	Difficulties of system integration causing project delays
Risk Likelihood	Since there is complexity of integration for the new API system, the likelihood of encountering difficulties is moderate (3 out of 5)
Risk Impact	Integration challenges could lead to delayed project timelines and may require excessive time of solving the issue. The impact on project progress is high (4 out of 5)
Risk Severity Finding	The severity ranking for integration challenges with the new API system OAuth2.0 is 12 (Likelihood 3 × Impact 4 = 12)

Legal:

The risk associated with legal consequences stemming from a data breach during migration poses a significant threat to the Hybe's Weverse project. South Korea's strict cybersecurity laws, as indicated in the DataGuidance (2022), emphasise the critical need for stringent data protection measures. A breach of data protection laws could lead to substantial fines and severe legal penalties, potentially inflicting irreparable harm on the company's reputation.

Risk Identified	Legal risk related to the data breach upon data migration process
Risk Likelihood	Considering the strict legal framework and the sensitivity of the data being handled, the likelihood of legal consequences due to a data breach during migration is moderate (3 out of 5)
Risk Impact	The impact of legal consequences, including hefty fines and reputational damage, could be very high (5 out of 5), potentially affecting the project's financial stability and market standing
Risk Severity Finding	The severity ranking for the risk of legal consequences for a data breach during data migration is 15 (Likelihood 3 × Impact 5 = 15)

Environmental:

Natural disasters are not common in Australia and South Korea, while South Korea does occasionally encounter threats of tropical storms which will affect the operation of the project in the short term and cause project interruptions and delays.

Risk Identified	Project office / team members affected by the natural disaster (typhoon) and cause disruption on the project
Risk Likelihood	The likelihood of natural disaster in South Korea is low (2 out of 5)
Risk Impact	The impact of project delays due to natural disaster is low as it will only cause a short-term interruption on the typhoon day (3 out of 5)
Risk Severity Finding	The severity ranking for the risk of project delay due to natural disease is 4 (Likelihood 2 × Impact 2 = 4)

Additionally, although COVID-19 has been successfully under control among the world while we have only one business analyst, cyber security specialist, therefore, the project will be immediately interrupted if any of them could not work due to COVID-19 infection.

Risk Identified	Project disruption due to COVID-19 infections of the project team members
Risk Likelihood	The likelihood of project staff being infected with infection disease is low (2 out of 5)
Risk Impact	The impact of project interruption due to staff unable to work due to disease is very high as it will directly cause loss of important manpower (5 out of 5).
Risk Severity Finding	The severity ranking for the risk of project interruption due to project staff (core project staff like project manager & business analyst) infected with COVID-19 is 10 (Likelihood 2 × Impact 5 = 10)

5.4 Risk Response & Risk Managers Delegation

The below table represents the seven risks identified and the risk manager delegation:

Person's Name	Risk ID & Short Description	Risk Manager Role & Responsibility	Risk Management Availability (%)	Contact Details
Justin Wu, Rafter Yuen & Park Ji Won	1: South Korea office's operation has been interrupted due to war in South Korea with North Korea 2: Reduce on the Weverse platform project's market share due to economic downturn between Australia & South Korea	Project Manager, Business Analyst, HYPE CEO Business Analyst	30% 30%	Organisation Email Organisation Email
Justin Wu	3: Project disruption due to South Korea's authoritarian culture on communication barriers	Project Manager	80%	Organisation Email
Venus Wong & software developer team	4: Legal risk related to the data breach upon data migration process	Cyber Security Specialist & Software developers	50%	Organisation Email
Justin Wu	5: Project office / team members affected by the natural disaster (typhoon) and cause disruption on the project	Project Manager	40%	Organisation Email
Justin Wu	6: Project disruption due to COVID-19 infections of the project team members	Project Manager	30%	Organisation Email
Justin Wu, UAT testers & software developers	7: Difficulties of system integration causing project delays	Project Manager, Software developers and UAT testers	60%	Organisation Email

Furthermore, risk mitigation measures are required for the success of the HYPE project and the below table are the planned risk mitigation measures of our HYPE project:

Risk ID	Risk Short Description	PESTLE aspect	Risk Mitigation Strategy
1	South Korea office's operation has been interrupted due to war in South Korea with North Korea	Political	<ul style="list-style-type: none"> 1. Business Analyst regularly perform political risk assessment to closely monitor the possible impact arise from the political issues with North Korea on the political situation and develop up-to-date preventive measures 2: If the operation of South Korea office is closed due to war / government regulations, transfer the required project team members from South Korea to Australia
2	Reduce on the Weverse platform project's market share due to economic downturn between Australia & South Korea	Economic	<ul style="list-style-type: none"> Business Analyst perform continuous market analysis in order to acquire the most update economic trend and behaviour of customers, and provide recommendations on the project's revenue projection plan
3	Project disruption due to South Korea's authoritarian culture on communication barriers	Sociocultural	<ul style="list-style-type: none"> Update the second training plan and include cultural training from Project Manager to ensure a open communication culture is developed in the project team to share feedback constantly
4	Legal risk related to the data breach upon data migration process	Legal	<ul style="list-style-type: none"> 1. Purchase cybersecurity liability insurance to mitigate the fine 2: Cyber Security Specialist perform cybersecurity assessment regularly to prevent possibility of data breach due to the cyber attack of systems
5	Project office / team members affected by the natural disaster (typhoon) and cause disruption on the project	Environmental	<ul style="list-style-type: none"> 1. Let the workers perform work from home duties to mitigate the effect of short term office downtime due to natural disasters 2. Save the data in a cloud system and the system could be accessed between 3 office (USA, South Korea & Australia) so that other office teammates could perform the affected colleague's work
6	Project disruption due to COVID-19 infections of the 6 project team members	Environmental	<ul style="list-style-type: none"> Recruit project team members from other department of the company to assist with the work during colleague's quarantine / sick leave period
7	Difficulties of system integration causing project delays	Technological	<ul style="list-style-type: none"> 1: Increase the frequency of the system integration testing for UAT testers to ensure the API system function could be processed correctly under different situation 2: Conduct technology audits on the system regularly to identify the possible risk of security and malfunction arised from the integration process, then develop contingency plan

5.5 Risk Register Dashboard

Risk Register includes the information and outputs of the risk management process, and the Monitor Risk and Implement Risk Response processes are included in the dashboard (PMI, 2017). The below are the risk register dashboard specifically for HYPE project:

RISK Assessment						Stimulated First Risk Occurrence Management						
ID	Risk Statement	Risk Owner	Risk Probability	Risk Impact	Risk Score	Risk Response strategy	Revised Risk Probability	Revised Risk Impact	Revised Risk Score	Risk Response actions	Risk Status	Comments
5	Project office / team members affected by the natural disaster (typhoon) and cause disruption on the project	Justin Wu	0.5%	Low	4 (South Korea)	Share data in cloud system for all 3 cities, work from home	0.5%	Very Low	2 (South Korea)	Share data in cloud system for all 3 cities, work from home	Closed	Quite Effective
1	South Korea office's operation has been interrupted due to war in South Korea with North Korea	Justin Wu, Rafter Yuen & Park Ji Won	0.6%	Very high	10	Shift the manpower from Korea office to Australia office during pandemic, perform political risk assessment	0.4%	Moderate	3	Shift the manpower from Korea office to Australia office during pandemic, perform political risk assessment	Open	Effective
6	Project disruption due to COVID-19 infections of the project team members	Justin Wu	0.6%	Very high	10	Temporary recruit manpower from IT department during manpower shortage time	0.6%	Moderate	6	Temporary recruit manpower from IT department during manpower shortage time	Open	Effective
2	Reduce on the Weverse platform project's market share due to economic downturn between Australia & South Korea	Rafter Yuen	5%	High	12	Perform continuous market analysis	0.5%	Moderate	6	Perform continuous market analysis	Closed	Moderate
7	Difficulties of system integration causing project delays	Justin Wu, UAT testers & software developers	2%	High	12	Increase system testing frequency, regular technology audits	0.5%	Moderate	6	Increase system testing frequency, regular technology audits	Open	Moderate
4	Legal risk related to the data breach upon data migration process	Venus Wong & software developer team	1%	Very high	15	Purchase cybersecurity liability insurance, perform cybersecurity assessment	0.5%	Moderate	6	Purchase cybersecurity liability insurance, perform cybersecurity assessment	Open	Effective
3	Project disruption due to South Korea's authoritarian culture on communication barriers	Justin Wu	30%	Very high	20	Provide cultural training program, promote open communication culture	5%	Moderate	9	Provide cultural training program, promote open communication culture	Open	Quite Effective

5.6 Risk Management Cost Estimation

We estimate there is a need for risk management cost of AUD\$148,099. Since Risk ID 2 & 3 included in the risk assumption and included in the internal duties for Business Analyst & Project Manager's training cost, these two risks will be not incurring risk management cost. The below are the table for the Risk Management Cost Estimation:

Risk ID	Risk Short Description	Risk Cost Estimation
1	South Korea office's operation has been interrupted due to war in South Korea with North Korea	Assume 4 software developers need to shift from South Korea to Australia office: 1. Air Ticket: AUD\$1569 x 4 = AUD\$6,276 (Cathay, 2023) 2. Accommodation for 5 months: AUD\$152 X 150(days) X 4 people =
2	Reduce on the Weverse platform project's market share due to economic downturn between Australia & South Korea	N/A
3	Project disruption due to South Korea's authoritarian culture on communication barriers	N/A
4	Legal risk related to the data breach upon data migration process	Cyber Security insurance: AUD\$1,000 (Upcover, n.d.) to cover maximum compensation of KRW 500 million in case of data breach (Bakermckenzie, 2022)
5	Project office / team members affected by the natural disaster (typhoon) and cause disruption on the project	Purchase cloud system storage from Azure Cloud System: AUD \$4623 (Datamation, 2023)
6	Project disruption due to COVID-19 infections of the project team members	One time temporary worker recruitment for 2 weeks: AUD\$5,000
7	Difficulties of system integration causing project delays	Technology audits cost per month: \$10,000 x 4 = AUD\$40,000 (H-X, 2023)
Total :		AUD\$148,099

Section Summary:

We have identified seven risks with the usage of risk register, risk matrix and PESTLE framework. There is an estimated risk management cost of AUD\$148,099 and the next section will provide a conclusion of the whole report.

6. Project Planning Conclusion

In the previous planning report, we provided a brief of our case study, project management methodologies, and government framework as guiding principles throughout the project. We proposed a project team structure. We have identified, analysed, and grouped the critical stakeholders in our stakeholder management plan. Based on the stakeholder grouping, we tailored appropriate engagement and communication strategies to meet stakeholders' needs effectively to achieve a more efficient project execution. Furthermore, we developed our recruitment plan to ensure the selection of individuals who best fit their respective roles within our project team. We also plan to provide two training programs for existing and newly recruited team members to equip them with the necessary skills and knowledge to execute this project.

In this planning report, we further analysed the product and work scope in more detail with appropriate assumptions. The project scope includes designing Weverse landing page, developing customisable K-pop merchandise, and integrating Kakao into Weverse through OAuth 2.0. The scope serves as the basis for the project schedule and budget management plans. In our schedule planning, we utilized various techniques such as the PERT diagram, Gantt Chart, and Critical Path with applicable assumptions to ensure the feasibility of meeting the project deadline (i.e. the end of December 2023). We expect the project to start on 1st August 2023 and complete on 27th December 2023. In our budget planning, we managed to utilize approximately 81.0% of the given budget of USD1million. Last but not least, we have identified seven potential risks with corresponding mitigation measures that our project team shall consider, but the overall risk rating for this project remained moderate.

In conclusion, this project plan comprehensively encloses a proposed project team structure, stakeholder management, communication plan, project scope, schedule, budgeting, and risk management. The project plan will be handed to project sponsors for approval.

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