

## PROJECT MANAGEMENT PLAN

### *Cloud-Based Travel Insurance Platform*



## Revision History

Version Number	Description	Date Modified	Author
1.0	Finished Management Plan	2019/6/4	Team members of Group 4
2.0	Integrated Management Plan	2019/6/5	Team members of Group 4

## Authority Signatures

The Project Lead (Business Side) and the Project Manager agree to deliver the Delivery Stage of this project in accordance with this Project Management Plan and amend it periodically as project parameters change.

Prepared by: _____		
Signature		
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Name	ID	Date

Approved by: _____		
Signature		
Please print: _____		
Name	Title	Date

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## 1 Executive Summary

### 1.1 Project Establishment Motivation

The Hibernia-Sino Travel Insurance, our customer company, supports various insurance services in Ireland-China cross-border tourisms. As the result of increasing customer volume and requirements to improve work efficiency, administrators in Hibernia-Sino want to migrate related services from dated desktop software system to cloud-based application for remote access and one-line processing.

Specifically, the web application should consist two parts: the Customer Center comprising functionalities like insurance purchasing, pre-departure baggage registration and lost baggage claiming, as well as the Employee Platform for on-line claim order processing and checking. Besides, this system should have good adaptability to various devices and screen sizes.

### 1.2 Problem Demonstration and System Design

According to requirements from Hibernia-Sino, we propose our solution to realize the best value after prudent system design. In general, our application should be able to:

- support separated but comprehensive insurance-related services;
- facilitate order processing based on the principle of profit maximization;
- put forward mechanisms / strategies to avoid malicious users and insurance fraud.

Under these premises, we have designed more specific mechanisms to meet user experience, profit maximization, security and technical objectives, and also realized the core requirements of Hibernia-Sino Travel Insurance.

#### Multiple Insurance Products and Projects

This system provides multiple insurance products varying in validity and coverage. Humanized and flexible choices are designed to satisfy multifarious requirements.

Typically, customers who travel frequently between China and Ireland are suggested to buy the annual product. They just need to register baggage before each trip to avoid repetitive payments. Additionally, customers acquiring long-term services can gain a certain level of discount, while the company can also get the money in advance. Therefore, to enhance usability with pecuniary concerns, our application supports a wide range of options on insurance products and projects.

#### Separated Insurance Registration Claim Services

As the consequence of product choices, insurance purchasing, baggage registration and claim initiating are treated as independent activities. New registration will only be permitted when the attached insurance does not expire, and the total compensation amount does not exceed the premium. Besides, accesses for claiming will be enabled merely for registered baggage.

#### Fraud Prevention Measures

Since baggage insurance fraud has almost no risks and consequences, we have to propose feasible solutions to forestall this problem. In this case, our general strategy is to enhance data reliability.

In our system, if an employee declines a claim application, corresponding baggage registration process and claim process will be terminated immediately, and customers will not get any indemnity. We hope with this risk, customers can provide credible information.

### **1.3 Feasibility Assessment and Implementation Plan**

In this section, we will evaluate the above four mechanisms individually in terms of feasibility taking technical implementation into consideration.

#### **Multiple Insurance Products and Projects**

This function is feasible, and we plan to realize it with additional design listed as below.

- Front-end: tables for individual products displaying related information (coverage, validity etc.).
- Database: tables recording product and project information.

#### **Separated Insurance, Registration, Claim Services**

This function is feasible, and we plan to realize it with additional design listed as below.

- Front-end: three web pages for insurance purchasing, baggage registration and lost baggage claiming individually.
- Back-end: three independent API gateways (routing methods) to process these three logics individually.
- Database: three or four extra tables to store insurance orders, baggage registration orders and claim orders separately.

#### **Fraud Prevention Measures**

This function is feasible as we perform order state tracking. Claim orders that have been declined to employees should have different state value. Once the back-end and the front-end detect any changes, they will terminate relevant insurance processes. For example, declined orders will be marked in red at the front-end, and no access to other services will be available.

### **1.4 Quantitative and Measurable Objectives**

In this section, we will list out a set of quantitative, at least measurable objectives fulfilling both functional and non-functional requirements. Functional requirements can be judged via detailed descriptions of operations, while non-functional requirements can be judged through quality attribute scenarios.

#### **1.4.1 Functional Requirements**

This web application should satisfy functional requirements from Hibernia-Sino Travel Insurance.

- Customers can select an interested insurance product, complete personal information, and submit an order to start subsequent services.
- Once registered baggage is lost, customers can initiate a claim and get compensation.
- Employees can process claim orders with three options:

1. Accept (compensation will be sent to customers' bank account), decline (the system),
  2. Decline (the system will notify the customer about the failure),
  3. Require more information (customers should supplement claim information and submit again).
- Customers can access the application through PCs and mobile phones.
  - Customers can switch between Chinese version and English version.

#### 1.4.2 Non-Functional Requirements

Additionally, this system should retain excellent performance in terms of non-functional requirements, evaluation will be performed by checking quality attribute scenarios.

##### - Security

Measures concerning security are carried out to achieve legal/political/regulatory objectives.

1. Sensitive personal information, typically passwords, should be encapsulated.
2. User inputs should be validated using regular expressions to avoid malicious information.
3. Customers should register new accounts before enter the Customer Center.
4. Changing passwords should require successful email validation first.

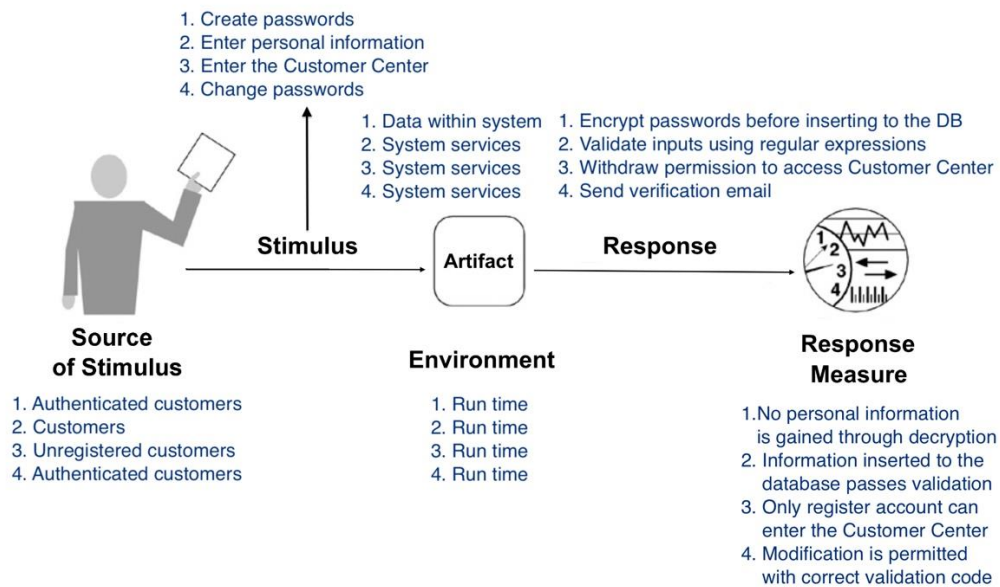


Figure 1 Security Concrete Scenario

##### - Usability

Measures concerning usability are carried out to achieve technical and business objectives.

1. User guidance should be displayed on the Welcome page and the Home page so that customers can check required procedures easily.

2. Authenticated users should be assigned certain access rights. Unrelated services should be blocked to minimize confusion. (e.g. Accesses to baggage registration page should be blocked until customers have bought valid insurances.)
3. The system should be developed in bilingual versions for both Chinese and Irish customers.
4. Repeated operations should be minimized. Customers do not need to enter same information for several times (Information Re-usability).

Improved version of more specific and measurable objectives are listed in Usability Concrete Scenario.

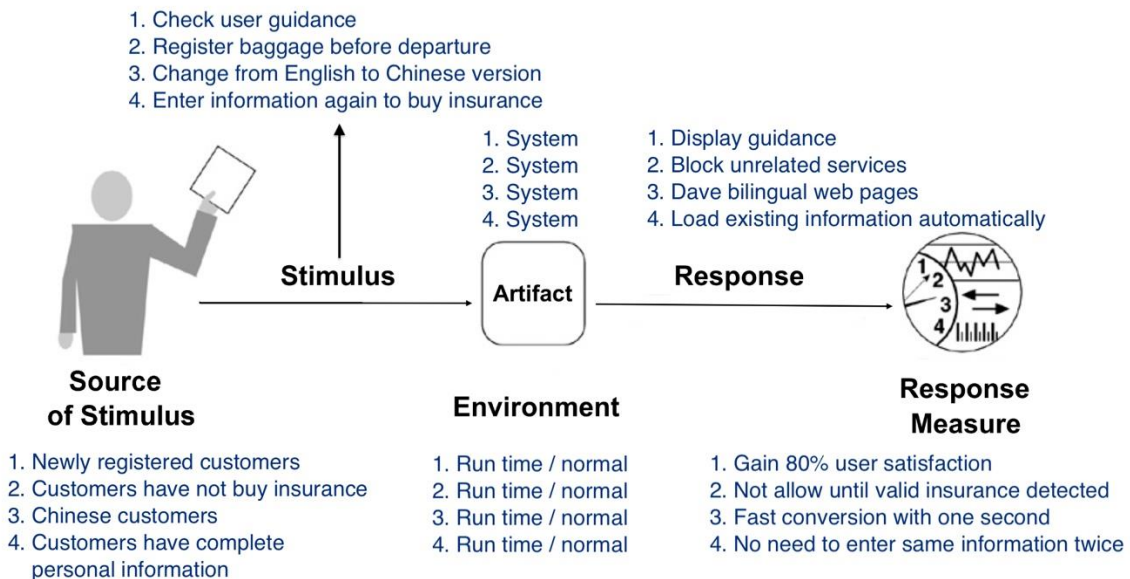


Figure 2 Usability Concrete Scenario

- **Stability + Performace + Availability**

Measures concerning stability are carried out to achieve technical objectives.

1. The Employee Platform should maintain constant throughput and linearly increasing response time when the customer volume increases.
2. Since customer-oriented services are mainly separated into insurance purchasing, pre-departure baggage registration and lost baggage claiming. System breakdown of one service should not affect others (they should keep functioning).

Improved version of more specific and measurable objectives are listed in Performace + Stability + Availability Concrete Senario.



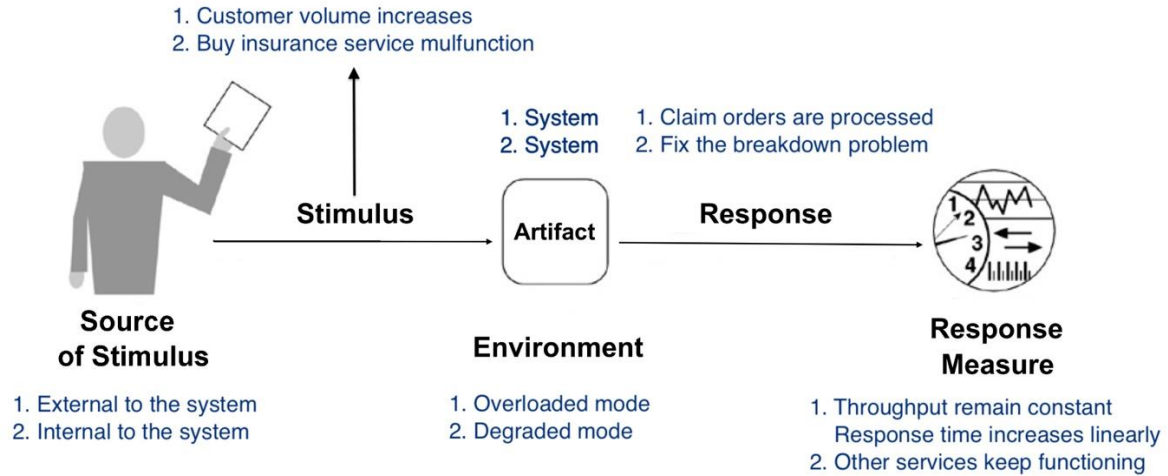


Figure 3 Stability + Performance + Availability Concrete Scenario

## 2 Integration Management

When carrying out project management, no matter which process or stage, we should not only focus on the parts, but also integrate the overall management idea into all aspects of project management. Also, we should focus on analyzing and solving problems from the overall perspective of the project.

The purpose of integrated management is to integrate all plans, coordinate all aspects, and integrate sub-areas such as scope management, time management, quality management, so as to make them conform to the overall goal of the project.

### 2.1 Project Team Structure

In this project, teachers that responsible for the module, teaching assistants, other groups, team leaders and user group are involved in the approval process.

Our teachers act as the customer Hibernia-Sino company. Our developing group leader communicate with them via e-mails, meetings and reports. The teachers are also the sponsors who we communicate with in class.

Other developing groups act as the senior user. They do user testing and system testing of our system and give some improving suggestions.

Our project manager is teaching assistant. The TA attend our weekly meeting, report our process to teachers and convey our problems to them.

We have a team leader to coordinate and manage various affairs, and user group to give feedback of the system. More detailed team structure is illustrated in the image below.

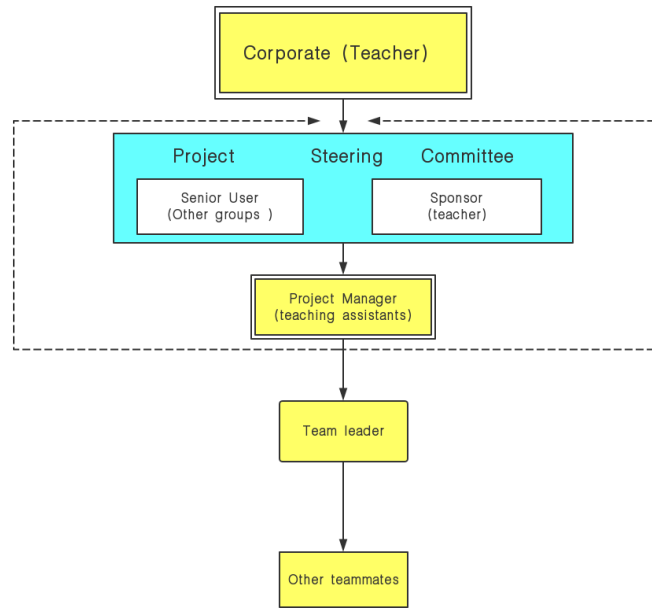


Figure 4 Project Team Structure Diagram

## 2.2 Roles and Responsibilities

Project Position	Name	Responsibilities
Corporate/Programme Committee	Dr. Catherine Mooney, Dr. Becker Brett	Represent Hibernia-Sino Company
Senior User	Other groups	Testing
Executive /Sponsor	Dr. Catherine Mooney, Dr. Becker Brett	Give support for the project
Project Manager	Teaching Assistants	Report our process and convey our problems to teachers
Team Leader	Li Xiuxian	Write <b>Executive Summary</b> in Management Plan
Group Member	Li Shipu	Write <b>Integration Management</b> in Management Plan
Group Member	Li Xuotong	Write <b>Schedule Management</b> in Management Plan
Group Member	Li Yinyue	Write <b>Cost Management</b> in Management Plan
Group Member	Li Zhongkang	Write <b>Scope Management</b> in Management Plan

Group Member	Li Zhongyuan	Write <b>Quality Management</b> in Management Plan
Group Member	Liang Yuan	Write <b>Communicaiton Management</b> in Management Plan
Group Member	Liang Zirui	Write <b>Human Resource Management</b> in Management Plan
Group Member	Lin Minhui	Write <b>Risk Management</b> in Management Plan
Group Member	Wang Maozun	Draw <b>Project Team Structure Diagram</b> in Integration Management

## 2.3 Change Management

### *Step 1: Change Request*

Change applicant --- Request for change

Reporting --- change request form

### *Step 2: Change Assessment*

Change evaluator (Project steering group) --- evaluate the change

Reporting --- Change evaluation form

### *Step 3: Change approval / denial*

Change Control Board (CCB) --- making decision

Technique --- Majority/Plurality

Reporting --- Change confirmation

### *Step 4: Change implementation*

Change agent --- implement the change

## 2.3.1 Change Control

- *Change governance*

This is the process to firstly deicide if there should be a change.

The project manager approves the change request. If necessary, the Change Control Board (CCB) is responsible for approving or rejecting the change request.

- *Change identification and request management*

Identify the changes that should implement. These changes should meet the project requirements.

- *Impact analysis*

Assess the impact of the changes and be prepared to face the risks.

- *Change approval process*

Relevant personnel and departments actually implement the change in this step.

- *Change tracking*

Follow up after the implementation of the change to ensure timely and effective response to any problems that may arise

## **2.4 Project Close Out**

### **1. Staff reassignment plan**

After the project is delivered and completed, the project team members will move on to other projects and continue with other work.

A number of members will also remain on the project, responsible for subsequent customer service and maintenance.

### **2. Archiving project materials**

Final confirmation and filing of all documents (for example, the contracts) generated during the project.

### **3. Post-mortem debriefings of project personnel**

Summary project performance and feedback to every member in the project team.

### **4. Final report**

Identify whether the project has achieved the objectives, and if it meet the requirements of sponsor, users, programmers, etc. Summarize the problems and solutions happen during the whole project. Document both good and bad solutions to learn from.

## **3 Scope Management**

### **3.1 Scope Statement**

#### **3.1.1 Product Scope**

The product scope includes the features and functions of the system. It can be divided into following parts:

##### **3.1.1.1 For customer**

#### **a) Account management**

##### **Register System**

This system allows users to register their own accounts; each user has a different username, ID and password, corresponding to different policy data.

##### **Login System**

This system allows users to login using their personal account

### **Changing personal information**

This function allows users to view and change personal information here. This part includes: username/ID, phone number, E-mail, etc.

### **b) Report functions**

#### **Insurance Report Generating**

This function supports clients to input required information and description of the losing belongs. After finishing the report, it will be submitted for the further auditing process from employees.

#### **Renew policy**

Customers can see all the insurance services they have already purchased. And the expiry time of policies will be displayed to customers. Customers can renew the service and the validate time will be extended.

#### **View Report**

Users can view the list of all historical policy information here. And the process of auditing of each report will be showed to them. When reports have been checked by employees, the status of reports will be changed. Then clients can check the detail and feedback from employees.

### **3.1.1.2 For employees**

#### **a) Account management**

##### **Login System**

This system allows employees to login using their personal account

##### **Changing personal information**

This function describes that employees can edit their accounts and personal information, such as password, name, etc.

#### **b) Insurance reports management**

##### **Displaying reports by status**

Employees can choose to check reports by status category. Employees can filter reports to check based on the report status (waiting, approval, rejected).

##### **Searching a report**

Employees can search a report using its order number.

## **Auditing a report**

Employees can check the detailed information of the reports and audit it. They have the option to either approve or reject the report request, and write feedback. If employee choose reject, then there must be a feedback, or the form cannot be sent and a warning will be displayed.

### **3.1.2 Project Scope**

<b>Activities in Scope</b>	<b>Activities Out of Scope</b>
Collect and analyze requirements	Consider extreme and personalized requirements
Define Scope	Add additional functions and modules for the current version.
Create WBS and plan milestones	Changing the members in the project group
Define tools: development language, tools, environment	Shorten the development time.
Design the system architecture	Reduce the funds.
Testing	
Maintenance	

## **3.2 Requirement Management**

### **3.2.1 Requirement gathering**

During the process of collecting requirements, we interviewed 100 volunteers who had experiences of working in an insurance company and some of them had experiences of purchasing insurance. In addition, we built a facilitated workshop including the representatives of Hibernia – Sino insurance company, experts in insurance area, developer representatives, user representatives. And we had a two-day focused session about how to provide users and employees with better service experience and more efficient working tools respectively.

After the interview and workshop discussion, we classify the requirements and remove the extreme ones and those don't correspond with the clients.

### **3.2.2 Control Scope**

Detailed regulations are made for controlling and monitoring the scope. Each group will have speech on the weekly meetings to present their completed work in that week and the task for the next week. The project manager will trace the status and progress of the project. Additionally, clients will take part in the meetings to give timely feedback, which is also beneficial to manage changes to the scope.

### **3.2.3 Validate Scope**

We set up an internal quality controlling group including client representatives and our developers, which is responsible for checking if the deliverables are correct and the functions implemented are meeting the quality requirements.

### 3.3 Project Deliverables

Deliverable	Recipients	Delivery Date	Delivery Method
Final requirements	Project steering group, development groups	2019/3/10	Documents
Front-end Architecture design	PM, Front-end developing group	2019/3/17	Documents and diagrams
Back-end Architecture design	PM, Front-end developing group	2019/3/17	Documents and diagrams
Server architecture design	PM, Back-end developing group	2019/3/17	Documents and diagrams
Database Design	PM, Server developing group, Back-end developing group	2019/3/17	Documents, diagrams and packages
Front-end UI design	PM, Front-end developing group	2019/4/1	Documents and diagrams
Front-end code	PM, Integration group	2019/4/25	Packages
Back-end code	PM, Integration group	2019/4/25	Packages
Server code	PM, Integration group	2019/4/25	Packages
Integrated version	Clients	2019/5/10	Completed system

#### 3.3.1 Work Activities

The work activities and relationships between are shown in the following Work Breakdown Structure.

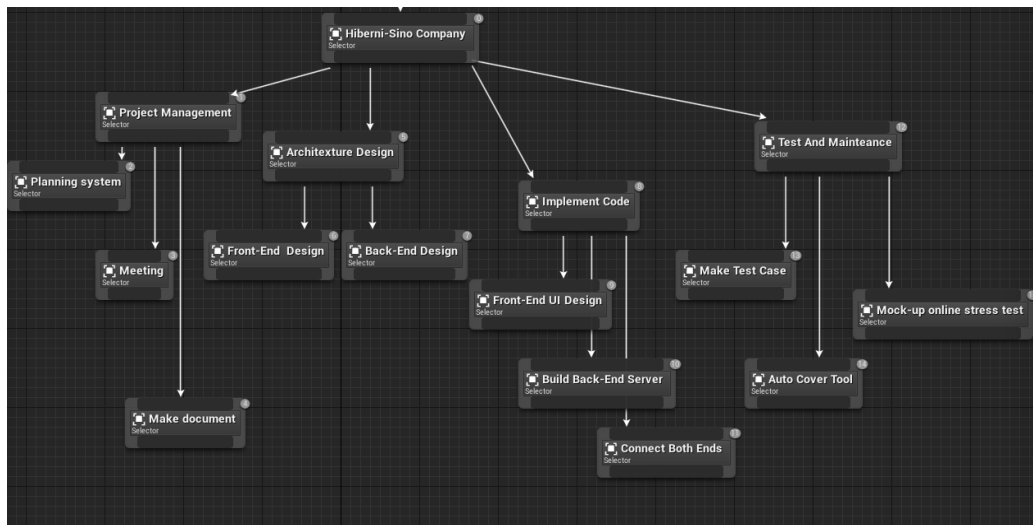


Figure 5 Work Breakdown Structure Diagram

### 3.3.2 Constraints

#### Hard Deadline

For any mid-size project, 11 weeks is a tough constraint that every member in the project should overcome.

#### Deliverables

In order to conform the scope and quality and meet the requirement, every deliverable should be checked before further development, which really makes the project process more complicated and extends the development time.

### 3.3.3 Assumptions

All the volunteers attended in the interview and workshops give the helpful and valuable information which is beneficial to collect requirements; all the team members have all the skills required; all the team members can finish their task in time; there are enough office space; the previous similar projects finish in time, etc.

### 3.3.4 Stakeholders

Hibernia – Sino insurance company (Sponsor), the customers of Hibernia – Sino insurance company, all the group members in the project group, all the participants in the collecting requirements process.

## 4 Schedule Management

Project schedule management refers to the scientific method to determine the schedule target, prepare the schedule plan and resource supply plan, carry out schedule control, and realize the schedule target on the basis of coordinating with the quality and cost target. The main goal of project progress management is to develop a reasonable and economical progress plan within the specified time, and then check whether the actual progress is consistent with the planned progress during the implementation of the plan, so as to ensure the completion of the project on time.

There are six phases in project schedule management: Define Activities, Sequence Activities, Estimate Activity Resources, Estimate Activity Duration, Develop Schedule and Control Schedule.

In this section, we follow clear steps to perform Schedule Management concerning this project.

#### ● Define Activities:

Due to the large number of activities involved in the project, we defined 7 important activities for analysis:

1. User login and registration
2. Buy insurance
3. Fill in personal information
4. Baggage registration
5. File claims
6. Employees process the orders
7. Employees process the claims



### ● Sequence Activities:

We used the precedence diagramming method (PDM) to show the sequence of these activities.

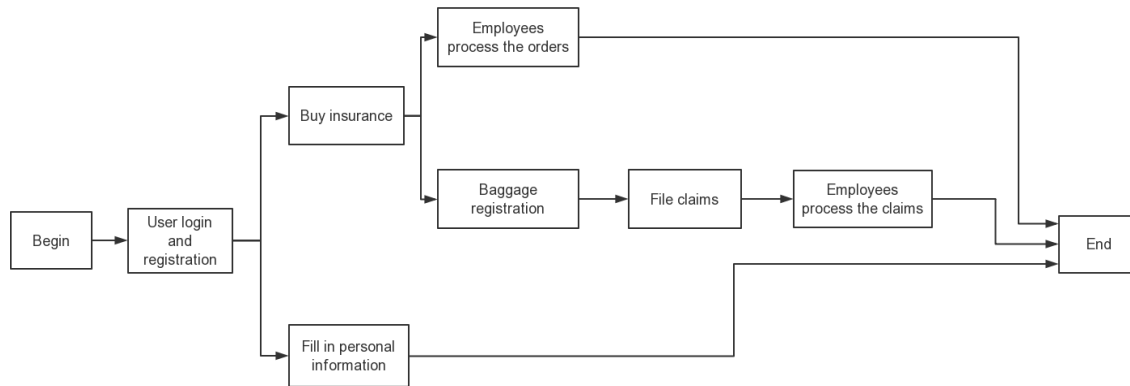


Figure 6 Precedence Diagramming Method

## 4.1 Milestones

Description	Forecast Date	Gate / Approval
Complete the UI design.	2019/4/1	2019/4/2
Complete the function of User Login and Registration.	2019/4/4	2019/4/5
Complete the functions of Buy Insurance and Fill in Personal Information.	2019/4/9	2019/4/10
Complete the functions of Baggage Registration and Employees Process the Orders.	2019/4/16	2019/4/17
Complete the functions of File Claims and Employees Process the Claims.	2019/4/25	2019/4/26
Testing and optimizing.	2019/4/30	2019/5/1
Complete the User Document and System Document.	2019/5/5	2019/5/6
Final Release.	2019/5/10	2019/5/11

## 4.2 Schedule Control

### 4.2.1 Measurement Mechanisms

In order to measure the progress of the work completed at milestones, we estimated the type and quantities of material, human resources, equipment, or supplies required to perform each activity. Then, we analyzed activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model.

● **Estimate Activity Duration:**

We used Three-Point Estimating to analyze each activity, and provide their Most Likely (tM), Optimistic (tO) and Pessimistic (tP) values considering estimation uncertainty and risks. Then, we used Beta Distribution to calculate the expected duration (tE):

(1) User Login and Registration

tM: 4 days

tO: 2 days – Front-end does not need to support user input validation.

tP: 5 days – Front-end submits user inputs to the back-end might fail (data format inconsistency).

tE: 4 days

(2) Buy Insurance

tM: 5 days

tO: 3 days – Front-end uses normal HTML form format.

tP: 7 days – Front-end uses JavaScript form-wizard, since user inputs could not be adapted in normal forms. Data submission might need adjustments at both front-end side and back-end side.

tE: 5 days

(3) Fill in Personal Information

tM: 5 days

tO: 2 days – Front-end just use normal HTML form.

tP: 6 days – Uploading avatars might fail. Data format inconsistency might occur.

tE: 5 days

(4) Baggage Registration

tM: 6 days

tO: 5 days – Directly use self-defined directives to simplify complicated logics.

tP: 8 days – Hard to display images in a list for users to offer their appraisals. Front-end might change the way to implement image processing service.

tE: 7 days

(5) File Claims

tM: 4 days

tO: 2 days – Data awaiting for submission is all in text format.

tP: 5 days – Data inconsistency might occur.

tE: 4 days

(6) Employees Process the Orders

tM: 6 days

tO: 4 days – Interaction among the front-end, the back-end and the database is smooth and efficient.

tP: 7 days – Data retrieval from the database might exist problems. Integrated data transmission might also require changes of methods or data structure.

tE: 6 days

(7) Employees Process the Claims

tM: 5 days

tO: 3 days – Notifications and process messages between different parts are smooth and efficient.

tP: 6 days – Problems might occur concerning process message transmission.

tE: 5 days

- **Develop Schedule:**

We used critical path method (CPM) to estimate the minimum project duration and determine the amount of scheduling flexibility on the logical network paths within the schedule model:

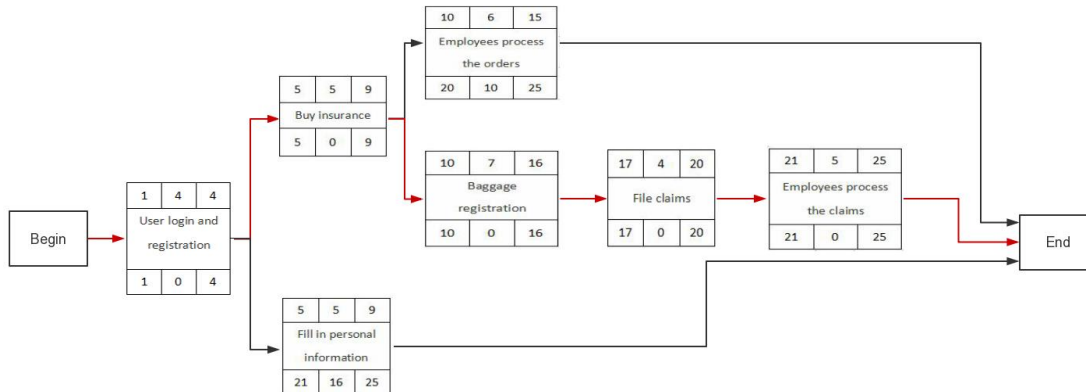


Figure 7 Cretical Path Method

\* The critical path is represented by the red arrow.

The critical path is the longest one of the project paths from the starting point to the end point. Therefore, in order to shorten the duration of the project, a method must be found on the critical route. On the contrary, if the critical route takes longer, the completion period of the whole project will be extended.

- **Gantt Chart:**

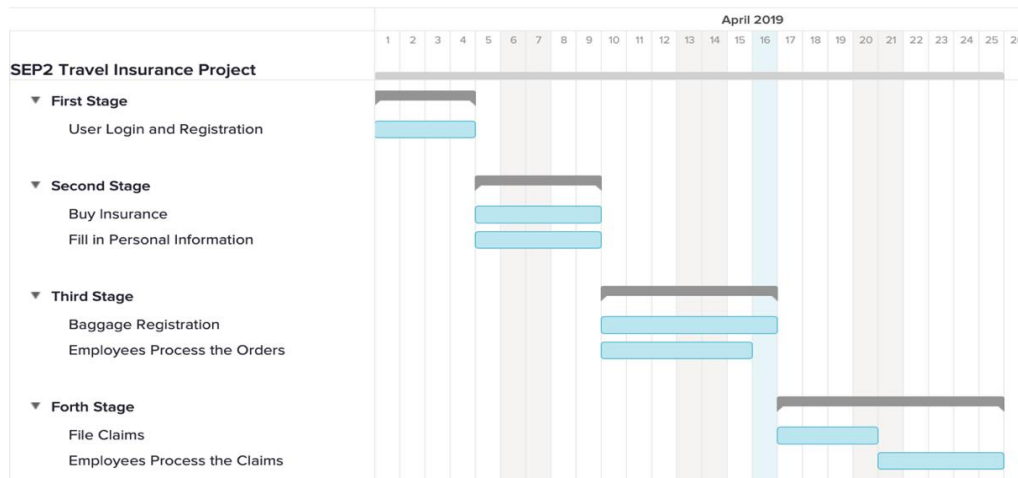


Figure 8 The Gantt Chart

According to the time estimation above, we design a Gantt Chart to display their relationships and arrangements. We will use this Gantt Chart to measure the progress of the work completed at milestones.

#### 4.2.2 Comparison Method

In order to monitor the status of project activities to update project progress and manage changes to the schedule baseline to achieve the plan, we will use Gantt Chart Comparison Method.

This method makes a direct comparison by putting the information collected through observation, inspection and collection in the process of the project, and then using the Gantt Chart to mark the original horizontal line together. Through analysis and comparison, the influence of schedule deviation is analyzed to find out the reason, so as to ensure the fixed time limit, quality safety and minimum cost as the goal, formulate countermeasures, assign a special person to be responsible for implementation, and make appropriate adjustment and update of the project schedule.

#### 4.2.3 Adjustment Schedule

- **Buffers:**

1. Project buffer:

One buffer placed at the end of the critical chain. Protecting the target finish date from slippage along the critical chain.

2. Feeding buffers:

Buffers placed at each point where a chain of dependent activities that are not on the critical chain feeds into the critical chain. Protecting the critical chain from slippage along the feeding chains.

- **Resource Optimization Techniques:**

Techniques which are used to adjust the start and finish dates of activities to adjust planned resource use to be equal to or less than resource availability.

1. Resource leveling:

A technique in which start and finish dates are adjusted based on resource constraints with the goal of balancing demand for resources with the available supply. It can be used when shared or critically required resources are only available at certain times, or in limited quantities, or over-allocated.

2. Resource smoothing:

A technique that adjusts the activities of a schedule model such that the requirements for resources on the project do not exceed certain predefined resource limits.

- **Schedule Compression Techniques :**

Techniques which are used to shorten or accelerate the schedule duration without reducing the project scope in order to meet schedule constraints, imposed dates, or other schedule objectives:

1. Crashing:

A technique used to shorten the schedule duration for the least incremental cost by adding resources. Crashing works only for activities on the critical path where additional resources will shorten the activity's duration.

## 2. Fast tracking:

A technique in which activities or phases normally done in sequence are performed in parallel for at least a portion of their duration. It only works if activities can be overlapped to shorten the project duration.

## 5 Cost Management

### 5.1 Estimation

Project estimation will include:

- Human resource
  - 5 Software developers
  - 1 Project manager
  - 1 Project quality personnel
  - 1 configurator
- Equipment management
  - 5 laptops
  - 1 server

We will use one week to estimate whole project.

The manager of code group will report the need of human and device sources to the manager of software configuration monthly. Then the manager of software configuration group will calculate all cost and report to the manager.

The timing of the estimates:

Name	Estimated value	Sum	Total
1 Login module		8	
1.1 Identification system	4		
1.2 Authority management	2		
1.3 Guests visitor	2		
2 Customer's modules		4	
2.1 create report	2		
2.2 check report's feedback	2		
3 Employee's modules		6	
3.1 browse all reports	2		
3.2 select report	2		
3.3 give report feedback	2		
4 Backstage administration modules		4	

4.1 visualize database	2		
4.2 update database	2		
5 Database		8	
6 UI		8	
7 Test		4	
8 Deploy		4	46

From this, the overall budget can be roughly calculated as follow:

Assume: one man one day cost 500 RMB

Task management + quality management = 30%

Development tasks = 31000 \* 30% = 9300 RMB

Direct cost= 9300 + 31000 = 40300 RMB

Indirect cos= direct \* 30% = 12090 RMB

TOTAL = 40300 + 12090 = 52390

In this case we need one more server add 10000 RMB = 62390 RMB

Stage	Allocation proportion	Workload Man-days	Human Cost	Other	Sum
Login module	17.4%	8	4000	1000	5000
Customer's modules	8.7%	4	2000	1000	3000
Employee's modules	13%	6	3000	1000	4000
Backstage administration modules	8.7%	4	2000	1000	3000
Database	17.4%	8	4000	1000	5000
UI	17.4%	8	4000	1000	5000
Test	8.7%	4	2000	1000	3000
Deploy	8.7%	4	2000	1000	3000
Total:		46	23000	8000	31000

I. Most likely (cM) 46

II. Optimistic (cO) 80

III. Pessimistic (cP) 92

IV. Distribution:

A. Triangular Distribution  $cE = (cO + cM + cP) / 3$   
= 72.6

B. Beta Distribution (from the traditional PERT technique)  $cE = (cO + 4cM + cP) / 6$   
= 59.3

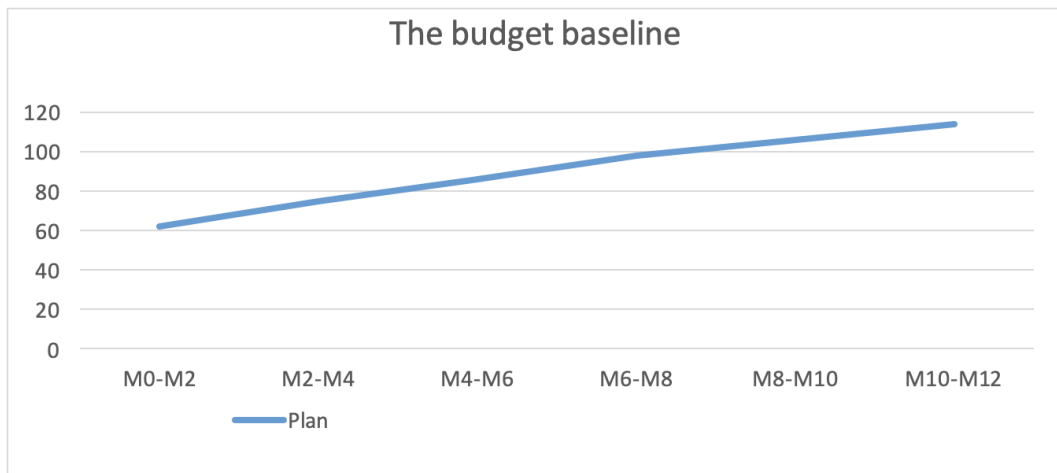
## 5.2 Budget Allocation

The monthly recurring includes with Human Resources and Travel costs

Non-recurring includes with the cost of equipment and training at the beginning of project, the review activities at the end of program

Category	Budget for Period in kRMB					
	M0-M2	M2-M4	M4-M6	M6-M8	M8-M10	M10-M12
Human Resources (internal)	10	10	10	10	4	4
Equipment	60	0	0	1	1	1
Travel costs	1	1	1	1	1	1
Training	2	2	0	0	0	0
Review activities	0	0	0	0	2	2
Total	62	13	11	12	8	8

Diagram 1 The Budget Baseline Diagram



## 5.3 Budget Control

- Planned Value(PV)
- Earned Value(EV)
- Actual Cost(AC)
- Schedule Variance(SV) = EV - PV
- Cost Variance(CV) = EV – AC
- Schedule Performance Index(SPI) = EV/PV
- Cost Performance Index(CPI) = EV/AC

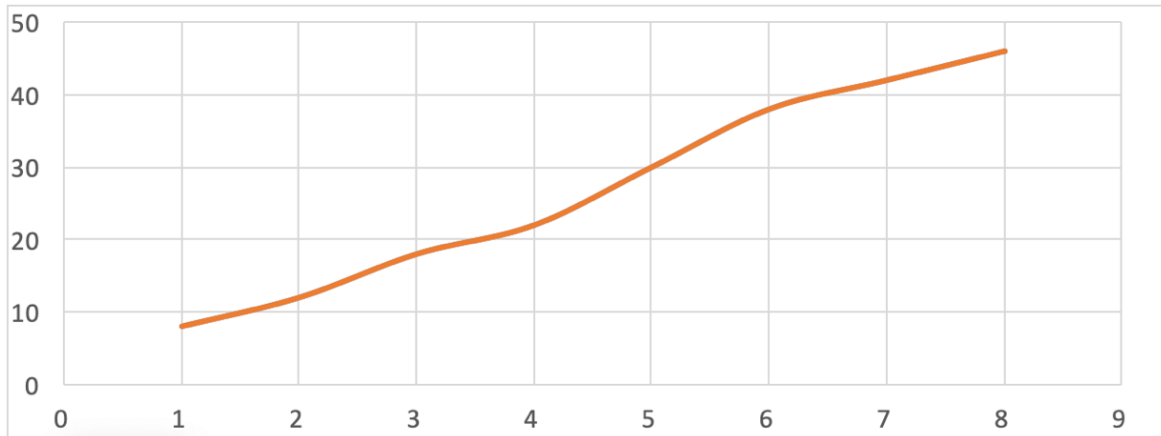
Update Time	Stage	Cumulative Cost-to-Date			This week the statistics			
		AC	PV	EC	SV%	CV%	SPI	CPI
W1	Login module	8	8	8	0%	0%	1.00	1.00
W2	Customer's modules	12	4	12	0%	0%	1.00	1.00
W3	Employee's modules	18	18	18	0%	0%	1.00	1.00
W4	Backstage administration modules	22	22	22	0%	0%	1.00	1.00
W5	Database	30	30	30	0%	0%	1.00	1.00
W6	UI	38	38	38	0%	0%	1.00	1.00
W7	Test	42	42	42	0%	0%	1.00	1.00
W8	Deploy	46	46	46	0%	0%	1.00	1.00

SV = CV = 0, SPI = CPI = 1. In general, the budget is in line with the actual situation.

AC = PV so **Two lines overlap**

BAC = EAV

Diagram 2 The Cost-to-Date Diagram



## 6 Quality Management



During the process of the project development, it is important to make sure that the quality of the project process and the project deliverable are satisfied with the customer and are of adequate quality and fit-for-purpose.

The following are the quality objectives of the project that reflect the overall intentions to be applied with regard to quality throughout the project.

1. The deliverable should be easy to use.
2. The deliverable should meet the requirements that the customer asked, including the report for the lost luggage, check and alter the personal information of the user, check the feedback from the employee end, register as a new user of the system, and employee can process the insurance request from the user.
3. Project practices conform to recommended project management standards
4. Deliverable should be multi-platform

The quality management plan identifies these key components

Objects of quality review	Quality Measure	Quality Evaluation Methods
Project Deliverables	Deliverable Quality Standards Completeness and Correctness Criteria	Quality Control Activities
Project Processes	Process Quality Standards Stakeholder Expectations	Quality Assurance Activities

## 6.1 Quality Assurance

The focus of quality assurance is on the processes used in the project. Quality assurance ensures that project processes are used effectively to produce quality project deliverables.

Project Process	Process Quality Stanards	Quality Assurance Activity	Frequency	Responsible
Develop project charter	Meet the requirements of the customer	Alter the project charter by each of the develop phase	Each project phase	Project manager
Execute and control project per project plan	Every functionalities of the requirements should be met	Audit the following project activities ✓ Quality ✓ Communications ✓ Project progress	Weekly Monthly Monthly	Whole team

Approve each project stage	100% compliance with framework	Audit stage checkpoints	Once per project phase/stage	Whole team
Review software development practices of software application	Developers have completely and accurately captured application requirements.	Peer review of software requirements specification.	At regular intervals during the collection of requirements	Lead developer in conjunction with other knowledgeable developers

## 6.2 Quality Control

The focus of quality control is on the deliverables of the project. Quality control monitors project deliverables to verify that the deliverables are of acceptable quality and the customer is satisfied.

Project Deliverable	Deliverable Quality Standards/ Completeness and Correctness Criteria	Quality Control Activity	Frequency/Interval
Software application which is used by the employee of the company	The page should be concise enough and easy to use, also have the full functions including the process the insurance report from the customer	Information mapping Technical editor review Core Team review Review Team review	Weekly by topic Weekly by topic Weekly by topic Monthly
Software application which is used by the employee of the company	The page should be concise enough and easy to use, also have the full functions including report for lost luggage, alter profile and check the feedback	Project Management Institute alignment per Project Core Team review Review Team review	Once during overall design Weekly by topic Monthly

## 7 Human Resource Management

<In this section, we will perform Human Resource Management analysis using Group 7 in Software Engineering Project 2 as prototype.>

In this project we do not have many functional departments and it is impossible to add new functional department, so we do not need to worry about balance of resources every much. In addition, in this small

project power division is clear, it will never be a problem and project manager's leadership are not important.

Considerate the above reasons, I chose functional organization to plan the human resource management. Using this organization can guarantee resource supply and the quality of the project deliverables and the professionals are convenient for mutual exchange and mutual support to solve technical problems.

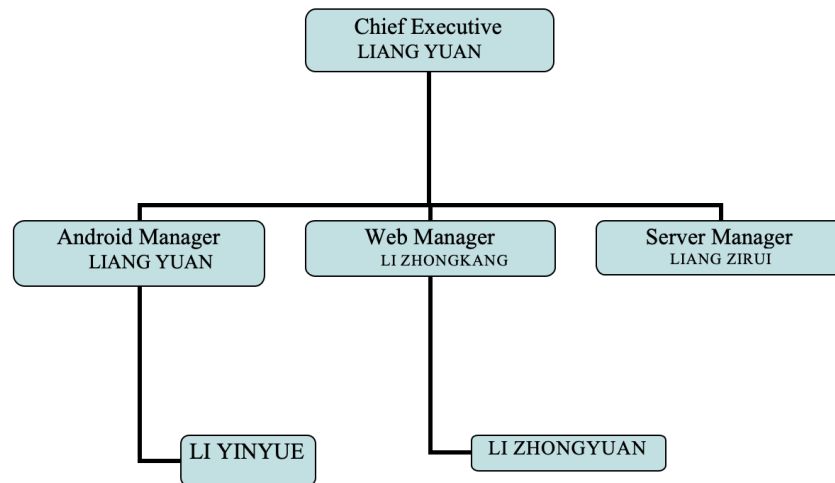


Figure 9 Team Structure in Software Engineering Project 2 - Group 7

## 7.1 Human Resource Acquisition

- Available Internal Candidates:
  - Liang Yuan:
    - Skill: Requirement analysis, JAVA
    - Date: week1-week15
  - Li Yinyue:
    - Skill: JAVA
    - Date: week1-week15
  - Li Zhongkang:
    - Skill: JavaScript, HTML, CSS, PHP
    - Date: week1-week15
  - Li Zhongyuam:
    - Skill: JavaScript, HTML, CSS, PHP
    - Date: week1-week15
  - Liang Zirui:
    - Skill: PYTHON

- Date: week1-week15
- External Candidates: No external candidates.
- Selection of Candidates and Assignments to Tasks
  - Liang Yuan: Take responsibility for communicating with customer and transfer it to requirement for all developer and take charge for the front-end design of android development.
  - Li Yinyue: Take responsibility for developing the backend of android development and make sure it can connect with back-end server.
  - Li Zhongkang: Take responsibility for developing the UI design of web page and make sure it can connect with back-end server.
  - Li Zhongyuam: Take responsibility for developing the UI design of web page and make sure it can connect with back-end server
  - Liang Zirui: Take responsibility for developing the backend server, make sure the API can be used by all front end developer.
- Availability and Duration of Assignment for All Candidates:
  - As this is a very small project so all candidate should take part in this project from start to end.

## 7.2 Human Resource Development

### I. Project Specific Training

- A. The first week all group member get a training about the knowledge about Git and JSON so that make sure the version control is well done.
  - B. The second week all group member should know how to make testing so that the whole programming can run successful.
- II. Each week, the team should have a meeting to make sure each group member finish their own job in this week and determine the next week's tasks.

## 8 Communication Management

### 8.1 Stakeholder Analysis

Through the analysis of the project charter and the business environment of the enterprise, we conclude that our stakeholders are:

a) *Hibernia-Sino Company (sponsor, internal)*

Our client and key stakeholder, who is concerned about whether the project needs are met, whether the project quality is high, and whether the project benefits.

b) *Customer of the company (external)*

Insurance company customers, they are one of the users of our project results, mainly using our client-end, and is concerned about the quality and usability of the client-end.

c) *Employee of the company (external)*

The employees of the insurance company, mainly responsible for handling their customers' policies, are one of the users of our project results, mainly using our employee-end, and is concerned about the quality and usability of the employee-end.

d) *Develop team (internal)*

The project development team, which is the implementer of the whole development, is mainly concerned with the quality and return of the project results.

Then we analyzed potential impact or support each stakeholder could generate, classify them using the Power/interest grid and get this result form.

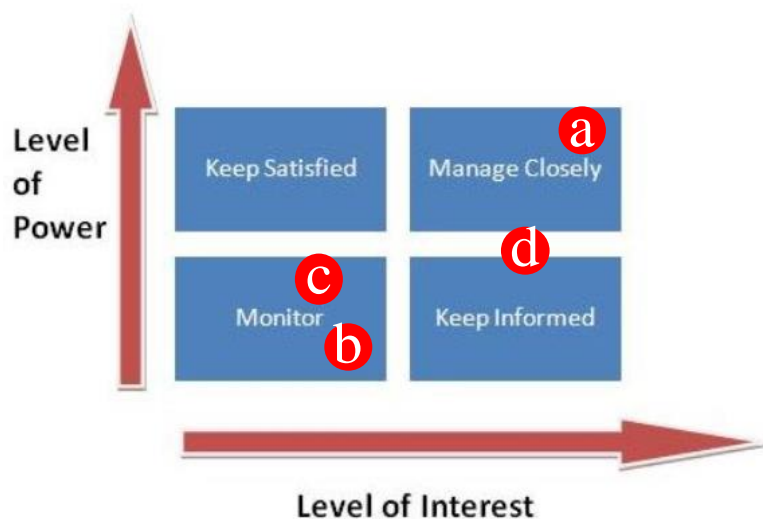


Figure 10 Stakeholder Analysis Form

Stakeholder Name	How they will impact the project	How they will be impacted by the project	Communication Requirements
<i>Hibernia-Sino Company</i>	Supportive, Propose functional and non-functional requirements for the entire project	The quality of the project directly affects the interests of the stakeholders	Report to the stakeholder on progress, results, and project quality during the current delivery phase and get new requirements.
<i>Customer of the company</i>	Supportive, Provide non-functional advice for client-end	Could affect their user experience	Inform them of changes made in the project in terms of their use

Stakeholder Name	How they will impact the project	How they will be impacted by the project	Communication Requirements
<i>Employee of the company</i>	Supportive, Provide functional and non-functional recommendations for employee-end	Could affect their user experience and the work efficiency	Inform them of changes made in the project in terms of their use
<i>Develop team</i>	Supportive, Directly affect the development efficiency and quality of the project	Directly affect their pay and workload	Address the needs of the users to them, update project document and get the current project status

## 8.2 Project Reporting and Communication

We have 5 kinds of communications; the use and manner of each communication is shown in the table below.

Type of Communication	Communication Schedule	Communication Mechanism	Initiator	Recipient
1.Weekly meeting (vertical)	Every Tuesday	Group meeting with meeting agenda and minute.	Project manager	Project team
2.Meeting with sponsor (horizontal)	Every Friday	Email with reports or briefings	Project manager	PM and Hibernia-Sino company
3.Review (vertical)	One week before mid-report and final release	Group meeting with meeting agenda and minute.	Project manager	Project team
4.Meeting with user (horizontal)	In the first week of requirement gathering phase	Emails and memos	Demand analyst	Demand analyst and future user
5.As-needed communication (vertical)	Anytime at weekdays	Emails and memos or group meetings	Project team member or PM	Project team

In (1), project members communicate orally during the meeting but ideas and priorities are recorded in the meeting minutes and agendas, they mainly discuss project progress, schedule, quality, risks and share results and problems with each other.

In (2), the PM will communicate with the customer via email, mainly about the current project progress report, budget, risks and customer satisfaction and new requirements.

In (3), project members will summarize the completed results and quality, and make a prospect for the future about the schedule, the key points will be recorded in the meeting minutes.

In (4), the PM will get suggestions about the project from the user and record them in notes.

In (5), project members or PM may meet or communicate via email in case of insurmountable technical barriers or sudden changes in requirements, and the contents and solutions of the meeting will be recorded in the meeting minutes.

## 9 Risk Management

### 9.1 Risk Plan Management

- A) Timing: every week risk management will be performed throughout the project life cycle
- B) Risk categories: risk breakdown structure(RBS)

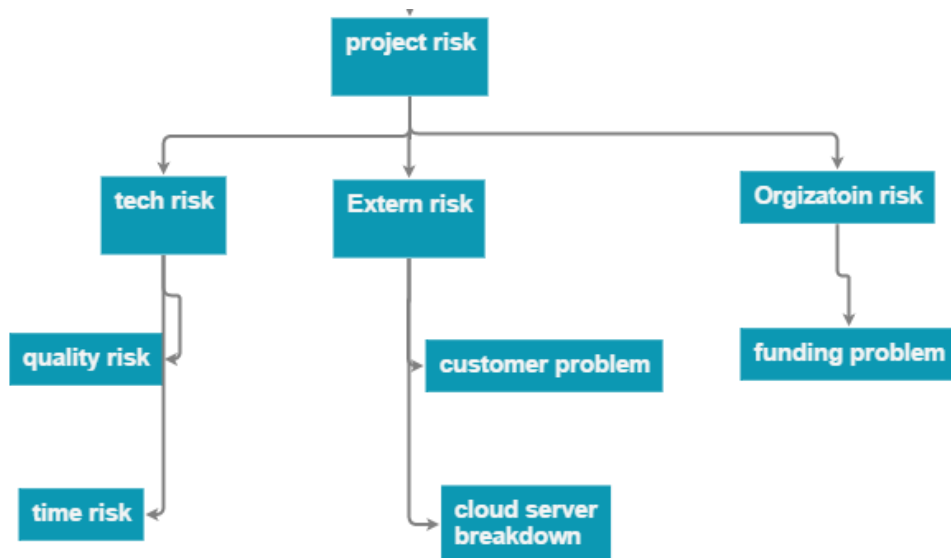


Figure 11 The Risk Breakdown Structure

- C) Risk probability and impact

Project objective	Very low /0.05	Mid 0.05-0.40	High >0.4
Cost	Low increase <0.1	Mid 0.1-0.3	High >0.3
Time	Insignificant <0.05	Mid <0.2	High >0.2
Quality	Few affected	Require approval	Sponsor reject

### 9.2 Identify Risks

- A) Gather technique: Brainstorm and the Interviews, Root case analysis

Identified Risks	Potential responses	Root causes
Plan not cover some areas	Reassessment regularly	Unfamiliar to area
Develop out of time	Invite third party's help	Insufficient personnel ability
Customer not satisfied	Frequent communicate	Customer's uncertainty
Wrong requirement analysis	Rework	Bad requirement understand

### 9.3 Erform Qualitative Risk Analysis

A) Interviewing:

WBS Element	Low	Most Likely	High
Project Management	\$4unit	\$5unit	\$8unit
Architecture Design	\$10unit	\$12unit	\$15unit
Implement Code	\$20unit	\$27unit	\$33unit
Test and Maintain	\$8unit	\$9unit	\$11unit

B) Sensitive analysis:

Risk	Probability	Cost
Develop out of time	0.5	-\$30unit
Plan uncover some area	0.2	-10\$unit
Wrong requirement analysis	0.1	-\$50unit
Customer not satisfied	0.05	-\$20unit

C) Expected monetary value analysis

i. Total EMV =-\$26unit

Our risk register

Identified risk	Potential Response	Root Cause	Category	Priority	Urgency
Plan not cover some area	Reassessment regularly	Unfamiliar to area	management	low	medium



Develop out of time	Invite third party's help	insufficient personnel ability	technical	medium	high
Customer not satisfied	Frequent communicate	Customer's uncertainty	human	low	medium
Wrong Requirement analysis	Rework	Bad requirement understand	technical	high	high

## 9.4 Plan Risk Responses

- A) Contingency plan:
- Avoid : keep team member up to plan to avoid uncertainty in project
  - Share: when some member has free time, help others when possible
- B) Fallback plans:
- Transfer : when the develop out of time, seek help from third part

## 9.5 Control Risks

- A) Risk reassessment: regular every week reassess risk register
- B) Technical performance measurement: compare performance with planned
- C) Status meeting:keep the team up to date on risk planning through project

## 10 References

The following documents are attached to this Project Plan for immediate reference.

Appendix	Document Name	E-DRM # /Version	Date
A			
B			
C			
Etc			