YITONG Express Project Management

Group 3

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1. Project Introduction

1.1 Purpose

This article is written for the logistics management system software management reports，ensuring that the production of the system in line with the budget，in accordance with the needs of standard，high-quality completed on time.

In order to ensure that the project team to accomplish the project objectives on time and durability, ease of project team members a better understanding of the project, to make the project work reasonable and orderly conduct of the various processes, it is necessary to form the documents, for the work in the project life cycle mandate, the work of the task decomposition, project team organizational structure, responsibilities of the team members, team communication and collaboration inside and outside, the development schedule, budget, environmental conditions inside and outside the project, risk countermeasures description written out in the way, as consensus project team members and stakeholders between and agreed basis for action all project activities within the project life cycle, according to the project team to carry out inspection and project work.

The project development plan to guide the "YITONG logistics system" project carried out smoothly in general and eventually through the review of the project products

The project development plan for all members of the project team.

1.2 Scope

It describes in detail the project's deliverables and the work required to created these deliverables.

It provides the common understanding of the project scope among all project stakeholders.

It enables the project team to perform more detailed planning, guides the team work during the execution, etc.

1.2.1 Program Purpose

The system improve efficiency in the field of personnel, delivery efficiency and reduce errors caused by human input as the goal. The purpose of this project is to increase the field people's working efficiency, the efficiency of delivery, and reduce the errors made by human inputs, etc. and be able to successfully achieve eight kinds of demand scenario for the project success criteria.

According to the following budget management, project funding budget: basic set at 250,000 ~ 255,000 yuan. Time cost: from June 1, 2016 to begin August 20, 2016, to complete the feasibility report of the whole system analysis, needs analysis statement, explained that the development plan, system design, project testing, the project summary of the conceptual model, the storage model, integrity control, access permissions are defined for each system function module detailed design, define the overall structure of the database, code naming conventions, and delivered to the user. Delivery date is August 20, 2016, deferred delivery date of September 1.

Project objectives: attributes such as success criteria, costs, etc.

1.2.2 Program Scope

This system is a custom function software (Customized products), implements a logistics software system, is based on interactive software application transaction (Interactive transaction-based applications), used with different types of network e-commerce platform dock, using in docking logistics companies, courier and corresponding terminals, corresponding goods delivery needs.

Scope description: the characteristics of the product/service, or result of the project.

1.2.3 Program Demand

Project requirements: conditions or capabilities must be met.

1.2.4 Program Boundary

Project boundaries: what is included in the project

1.2.5 Project deliverables

1.2.5.1 Program

Software name: YITONG logistics management system (management side, courier end)

Programming Languages: JAVA

1.2.5.2 Documentation

User Manual: This manual describes the software functionality, performance and user interface, allowing users on how to use the software to obtain specific knowledge, knowledge about the software provides a variety of operating conditions for the operator, in particular, the specific details of the operation method .

Software Maintenance Manual: including software instructions, program modules, instructions, operating environment, support software instructions, maintenance instructions process, ease of software maintenance.

1.2.5.3 Service

· Training: in the form of lectures customers be trained to properly use the software.

· Free advice: Customers can ask questions to the technical staff at work and get answers.

· Technical Support: For some customers, guiding the way to take home.

· Software Maintenance: Get software problems, provide patches.

· Upgrade Notification: a new version of the software is released, notify (Email or postal mail) registered users, and provide a trial version.

· Software upgrade: For registered users, requires less cost to upgrade to the new version.

1.2.5.4 Non-transfer products

· Feasibility Analysis Report: Description realize that software development projects in technical, economic and social factors on the feasibility, review order to properly achieve various development objectives alternative embodiments may be described and demonstrated by the embodiment chosen reasons for the program.

· Project Development Plan: software project implementation plan to develop a concrete plan should include each part of the work of the staff responsible for the progress of development, development funds budget, the necessary hardware and software resources.

· Software requirements specification (software specifications): The developed software functionality, performance, user interface and operating environment make a detailed explanation. It is both the user and the developer of the software needs to achieve a common understanding and agreement on the conditions under prepared, but also the basis of the implementation of development work. The description shall be given of the data requirements and data acquisition logic for generating and maintaining the system data files ready.

· Summary of the design manual: This manual is a summary of the results of the actual work phase, which should indicate the function assignment, module division, the overall structure of the program, input and output and interface design, operation design, data structure design and error handling design for the detailed design provided basis.

· Detailed design specification: A description of each module is focused on how to achieve, including the realization of algorithms, logic processes.

· Test plan: to do integration testing and acceptance testing, the need to develop an implementation plan on how to organize tests. Plan should include test content, the principle of selecting schedule, conditions, personnel, test cases, test results permissible deviation range.

· Test Analysis Report: After the test is completed, should be submitted on the implementation of test plans, analyze test results, observations and conclusions of the test.

· Monthly development progress: the progress of the project-based software monthly staff on a monthly basis to the management report, the report should include a comparison with the actual implementation schedule, the stage results, problems encountered and solutions as well as next month plans and so on.

· Project Development Summary Report: the future of software development project is completed, should control the project implementation plan, summarize the actual execution, such as progress, achievement, resource utilization, cost and manpower involved, in addition, the need to make the evaluation of the development work, summary the experience and lessons learned.

· Software problem reports: Indicate the registration of software problems, such as dates, find people, status, and other issues relevant to the module for the software to prepare the modified document.

· Software modification report: Software products put into operation later, found the problem need to be revised, modified, etc., there is a problem should be considered and the impact of changes made to modify the detailed description submitted for approval.

· Source: software development process all the code and comments.

· Project deliverables: product/service and associated support materials

1.2.6 Project restrictions：

According to project requirements, constraints will be real-time adjustments. Personnel organization later on.

According to the preliminary provisions of the basic needs of technology use are:

software:

Operating System: Windows, Android

Programming Languages: JAVA

Programming architecture: Spring MVC

Select Database: Oracle (to ensure that data on the order to meet the demand)

Terminal and Management System Communication Network: Wi-Fi line (the holding communications while maintaining mobility)

Integrated development tools: Intellij Idea

hardware:

Server: Pentium III 500 or higher above

Express terminal

Memory: 512M or more;

Hard Disc: 80G or more;

CD-ROM: 32 speed or more;

Network Adapter: 10MB / 100MB adaptive;

A printer

Workstation: Pentium 4 above microcomputer;

Memory: 512MB

Hard disk: At least 80 or more;

Network Adapter: 10MB / 100MB adaptive

Networking: at least one server

At least one workstation

Using TCP / IP protocol LAN

Runtime support required conditions:

A server request

1. Central processing unit (CPU) server recommended PIII 1G (above) Xeon processor chip.

2. You must use a dedicated server memory server ECC memory

3. In order to guarantee reliable data storage, the hard disk should use a redundant array (RAID 01)

4. In order to prevent the effects of unpredictable server failure or server periodic maintenance of the company's entire business caused all the recommended two servers. Both servers should constitute a double hot backup. Intermediate use Watchdog circuit. Such a structure can ensure long uninterrupted work of the entire system, even if regular maintenance on the server when you can also use another server backup job.

5. Server should support hot-swap power supply

6. The server must be equipped with UPS (uninterruptible power supply).

7. The server should be placed inside the school. Or can not program debugging.

8. The server should have a fixed IP address.

9. Other properties in the economic conditions permit, you should use high-speed stability accessories.

2、Software should be deployed on server

1. The server must use a firewall and anti-virus software.

2. In addition to the program must be equipped to run on the serverf is recommended not to install other programs unrelated to reduce accidental confusion or conflict program procedures.

3. Faculties operating system as much as possible unity. (Windows 9x or Windows 2000 family series). This avoids excessive overhead management software because the operating system version inconsistencies caused.

4. Faculties machines must also install anti-virus software and firewalls. To prevent the worm spread on the network within a network-wide.

1.2.6.1 Code Acceptance

Finally, prior to delivery customers within the group review, coding in line HB6465 standards, and documentation consistent code writing style uniform, the use of standards, not following error: due to software defects caused by loss of data, do not meet the design requirements, the response time is too long can not accept other issues.

1.2.6.2 Document Acceptance

Finally, prior to delivery customers within the group reviewed, in line HB6465 document format standards, the features correspond to the requirements of the contract with the customer, legible, there is no language problem and ambiguity.

1.2.6.3 Service Acceptance

Service Hardware achieve documentation requirements, assessment of qualified technical personnel, regular home maintenance.

Project constraints: that limit the team's options (e.g., technology, or organization, etc.)

1.3 Assumptions

Project assumptions: those associated with the project scope

Is carrying out a project plan for the realization of the project objectives should be regarded as established truth, determine dependencies; the condition is not satisfied will affect the achievement of project objectives

In general assumption is located outside the project team, project managers uncontrollable factors, rather than project managers should strive to achieve, controllable aspects.

Assumptions identification process is not a one-time process will be repeated many times

Assumptions of the project should be documented and known to all stakeholders Ø

Assumptions implicit project potential risks

Early Risk: contracts, technology and delivery capabilities, external conditions

In the project we are assumed to build the application for some logistics companies in China who delivers the products to customers home.Let's consider the logistics company contracting with TaoBao using the system. The user will be a service person, the logistics company and the customers of the corresponding logistics company.

Wherein both distribution-related service personnel who use the courier and express delivery system terminals with Android as the core of the terminal, and the logistics company's customers directly to the courier docking, only signed with an electronic signature part of the system interaction. Since our customers vast land, the courier system end branch has a high number of concurrent users. The number of concurrent users is colossal, similarly, if your website is visited by just 10 people every day, the server can deal with it easily, but if the number reaches to one billion, there would be a lot of problems. Firstly, the requests can't be sent to database directly, any database facing the pressure of 1 billion will crash immediately. Under this circumstance, you will need to use large scale distributed cache. All the information of the seller, products and the evaluations of them are fetched from the cache. In this way you can deal with the enormous number of concurrent users. Although the system won't have the scale of Taobao, the number of concurrent users will be an obstacles.

Logistics companies undertook to build and use a server, wherein the amount of data in the database will reach one million, has a very high maintenance requirements of its performance and operation. With around 760 million product listings as of March 2013, Taobao Marketplace is one of the world's top 10 most visited websites according to Alexa. For the year ended March 31, 2013, the combined gross merchandise volume of Taobao Marketplace and Tmall.com exceeded 1 trillion Yuan. So the data volume to be handled daily is tremendous. For example, when you want to search product on this system, if you have just thousands of products, it is feasible to use sql sentence such as "select * from table XX where title like %XX%" to accomplish. But when your data volume reaches the size of Taobao, any single database can't store the whole data, you need to use distributed data storage, and you will have to use search engine instead of fetching data directly from database. And even though you searched the products you want, how to sort them? Which product comes first? It requires complicated sort algorithms or recommender system.

As mentioned above, the number of users could be colossal. When they search products or read the information of products, they want it to be done quickly. The 12306.cn, scolded by most Chinese who want to order train tickets, is a bad example, because facing the tremendous number of concurrent users, it is unable to react well, and many people have to refresh the web page again and again. And we don't want that happens to our system.

To support such a huge website, how many servers are needed? And what operating system should be deployed to the servers? Can the kernels of the operating system be improved? Can we optimize the communication module? How to roll back if some problem happens?

Because many users express the issues involved, and personal information courier business, data security and must be carefully considered.

As every customer stores his or her cell phone number, address and other private information in this system, the system is responsible for the data security. In August, 2014, the database of Firefox broke down, the email addresses and passwords of the developers were leaked. Although no sign shows that someone used the passwords, Firefox still could not preclude the possibility that many people got them. In conclusion, methods should be taken to avoid the database being attacked and data being taken advantage of by the wicked.

2. WBS

3. Project Planning & Schedule

3.1 Draft the Project Plan

Our project team will draw up ad specific plan for the project. In such process ,we'd design the scope of the project ,determine the general purpose in the meantime . And we will find and raise our funds to perform the project at this stage.

3.2 Quality Control

Quality control is a normal process by which the measure of actual performance and quality compared with the standard, to take action when there is different.

3.3 Human Resource Allocation

Human resources management means that depending on the target software projects, changes in project progress and the external development environment, using scientific methods, the project team could effectively manage to achieve the objectives of the project.

3.4 Requirement Research

Software project managers and researchers discussed the range of the missions. Do division on research activities sequence. At the same time every activity period must be evaluated. Various resources must be allocated.

3.5 Requirement User

Hold a meeting of party A and B. Discuss the prototype together to reach a consensus. Make a final version of the requirement analysis report which both party accept. Determine the requirement tracking manager.

3.6 Requirement Analysis

Do the requirement analysis of the requirement research? Discuss everything mentioned and needed of the system that can be anticipated. Communicate with the stakeholder and do continues adjustment of the prototype until reach a consensus.

3.7 General Design

Define the design blueprints of the system. Introduce the whole structure ,functions ,process and modules .Affirm the relationship between different modules and different functions .And the interface should also be defined .As well as how the system interactive with external system.

3.8 Specific Design

Define the detail algorithm and data structure of every module. Design the structure of database and table.

3.9 Equipment purchase

Purchase the equipment needed according to the requirement analysis report.

3.10 Equipment testing

After equipment collected, testing and debugging it to make it can be used for following development.

3.11 Tools Selection

According to the requirements and selected developing languages, select the appropriate IDE ,software and hardware and distributed system if needed.

3.12 Staffs Training

Evaluate all the staffs' skills and familiarity with tools. If necessary, do some training of new or unfamiliar technology ad early as possible.

3.13 Architecture building

Architecture is fundamental to build a project, a good architecture will expand the project adaptability and scalability. So choosing a good architecture is essential. In this project, we mainly have to consider the amount of users and the degree of parallelism.

3.14 Functional modular

Sub-module development makes project developed in parallel, but can also allow developer to focus more on their own modules, ensuring the reliability of each module functions. The purpose of develop sub-module is to shorten the construction period.

3.15 Network Interface Development

A web application is inseparable from network interface, based on the design parameters, network interface will become very simple .Network interface was developed to be a valid pass parameters.

3.16 Database Development

The database is necessary part of a project, and the database will also be one of the bottlenecks of the project, so designing a reasonable database will improve performance and simplify the development.

3.17 Module Integration

Module integration is the need of development work, but also tests whether each module is qualified, In the integrated process, modules can be found many detail problem which could not be found before, Module integration purpose is functional integration.

3.18 Make a Testing Plan

Software Testing is an important activity in development. Making a plan will help us to our system effectively, In order to make the plan , we need to do a lot of work ,such as selecting a test method ,testing time and son on ,The plan could make our testing work more clear and help project manager review testing work.

3.19 Unit Testing

Unit Testing is a kind of Module Testing, it should be done by programmer, When developer complete a module, he/she should testing the function whether it worked or not in Unit Testing.

3.20 Integration Testing

Integration Testing looks like an upgrade of Unit Testing, it will integrate two or more modules and tests them together, it could find the bug which occurs when a few modules work in a time.

3.21 System Testing

Before System Testing, we need to put all software and hardware together, then we test the whole system. System Testing is used to check whether our system meets the need of our customer.

3.22 Alpha Testing

We could test our system in our team. Some act the customer and the others play others play the courier, we will complete the whole process to find bugs. Such testing may last a few days to test our system end to end.

3.23 Acceptation Testing

Acceptation Testing is the last step of test, its aim is ensure our system work correctly and could be used by real customers.

3.24 Install software

Our technology support team will install the software and configure the environment for our customer. We will prepare the install document for them also. There could have a training about the installation and configuration.

3.25 System testing

Ensure the system can run properly for our customer. In addition, security testing for system is necessary, make sure that customer can control the system.
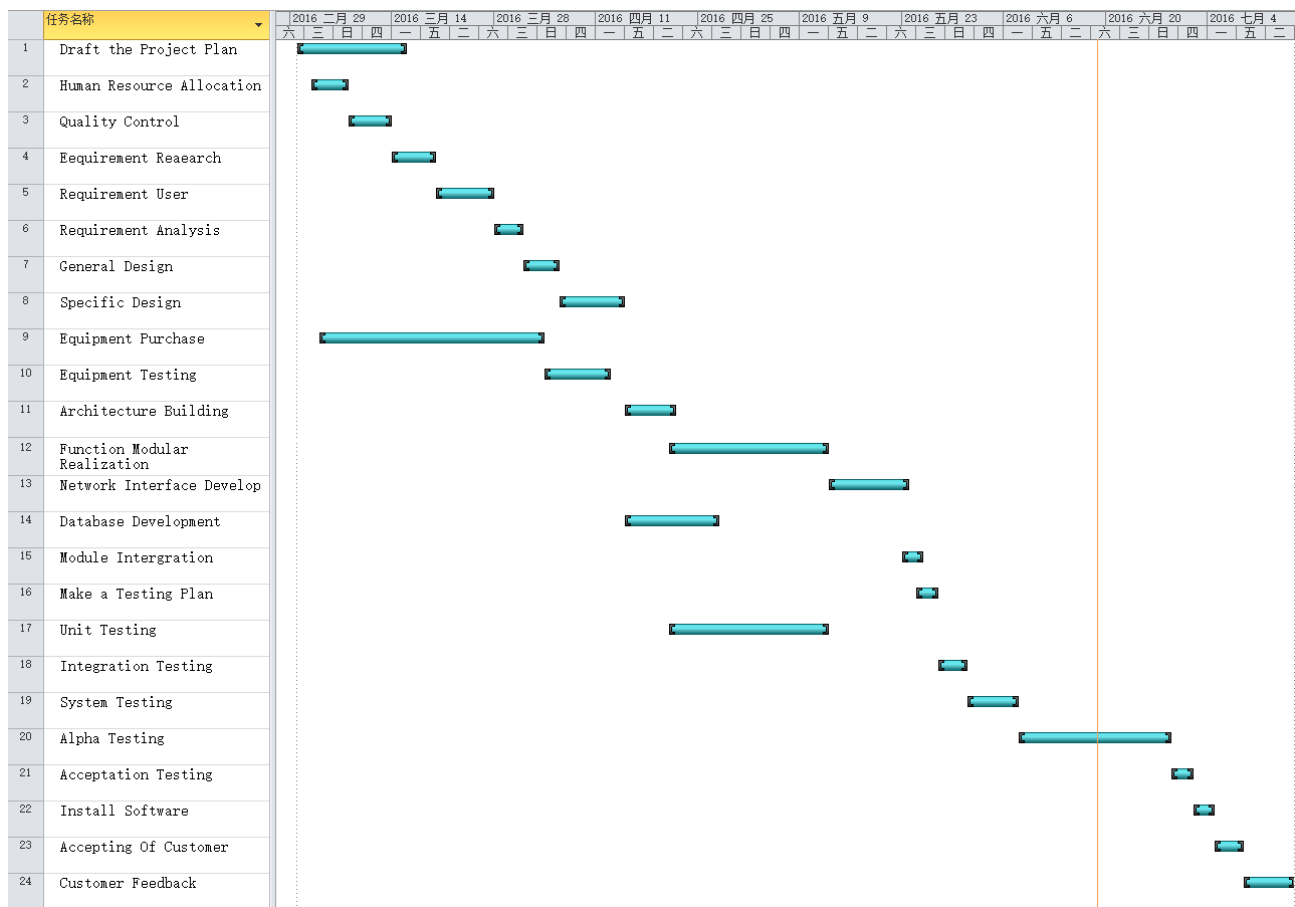
3.26 Acceptance of customer

During the inspection and acceptance, if customer finds that the software does not satisfy the technical and quality standards and the usage requirement, we shall make timely correction.

3.27 Customer feedback

Customer may feedback us some problems about the software, and we should provide technical support for this.

3.28 Gantt graph

	任务名称	2016 二月 29	2016 三月 14	2016 三月 28	2016 四月 11	2016 四月 25	2016 五月 9	2016 五月 23	2016 六月 6	2016 六月 20	2016 七月 4
1	Draft the Project Plan										
2	Human Resource Allocation										
3	Quality Control										
4	Eequirement Reaearch										
5	Requirement User										
6	Requirement Analysis										
7	General Design										
8	Specific Design										
9	Equipment Purchase										
10	Equipment Testing										
11	Architecture Building										
12	Function Modular Realization										
13	Network Interface Develop										
14	Database Development										
15	Module Intergration										
16	Make a Testing Plan										
17	Unit Testing										
18	Integration Testing										
19	System Testing										
20	Alpha Testing										
21	Acceptation Testing										
22	Install Software										
23	Accepting Of Customer										
24	Customer Feedback										

4. Team Construction

4.1 Roles

4.1.1 Project Sponsor

The project sponsor is the champion of the project and has authorized the project by signing the project charter. This person is responsible for the funding of the project and is ultimately responsible for its success. Since the Project Sponsor is at the executive level communications should be presented in summary format unless the Project Sponsor requests more detailed communications.

4.1.2 Program Manager

The Program Manager oversees the project at the portfolio level and owns most of the resources assigned to the project. The Program Manager is responsible for overall program costs and profitability as such they require more detailed communications than the Project Sponsor.

4.1.3 Key Stakeholders

Normally Stakeholders includes all individuals and organizations who are impacted by the project. For this project we are defining a subset of the stakeholders as Key Stakeholders. These are the stakeholders with whom we need to communicate with and are not included in the other roles defined in this section. The Key Stakeholders includes executive management with an interest in the project and key users identified for participation in the project.

4.1.4 Change Control Board

The Change Control Board is a designated group which is reviews technical specifications and authorizes changes within the organizations infrastructure. Technical design documents, user impact analysis and implementation strategies are typical of the types of communication this group requires.

4.1.5 Customer

The customer for this project is a service persons, the logistics company and the customers of the corresponding logistics company. As the customer who will be accepting the final deliverable of this project they will be informed of the project status including potential impacts to the schedule for the final deliverable or the product itself.

4.1.6 Project Manager

The Project Manager has overall responsibility for the execution of the project. The Project Manager manages day to day resources, provides project guidance and monitors and reports on the projects metrics as defined in the Project Management Plan. As the person responsible for the execution of the project, the Project Manager is the primary communicator for the project distributing information according to this Communications Management Plan.

4.1.7 Project Team

The Project Team is comprised of all persons who have a role performing work on the project. The project team needs to have a clear understanding of the work to be

completed and the framework in which the project is to be executed. Since the Project Team is responsible for completing the work for the project they played a key role in creating the Project Plan including defining its schedule and work packages. The Project Team requires a detailed level of communications which is achieved through day to day interactions with the Project Manager and other team members along with weekly team meetings.

4.1.8 Steering Committee

The Steering Committee includes management representing the departments which make up the organization. The Steering Committee provides strategic oversight for changes which impact the overall organization. The purpose of the Steering Committee is to ensure that changes within the organization are effected in such a way that it benefits the organization as a whole. The Steering Committee requires communication on matters which will change the scope of the project and its deliverables.

4.1.9 Technical Lead

The Technical Lead is a person on the Project Team who is designated to be responsible for ensuring that all technical aspects of the project are addressed and that the project is implemented in a technically sound manner. The Technical Lead is responsible for all technical designs, overseeing the implementation of the designs and developing as-build documentation. The Technical Lead requires close communications with the Project Manager and the Project Team.

4.1.10 Project Team Directory

The following table presents contact information for all persons identified in this communications management plan. The email addresses and phone numbers in this table will be used to communicate with these people.

4.2 Team Constructure Graph
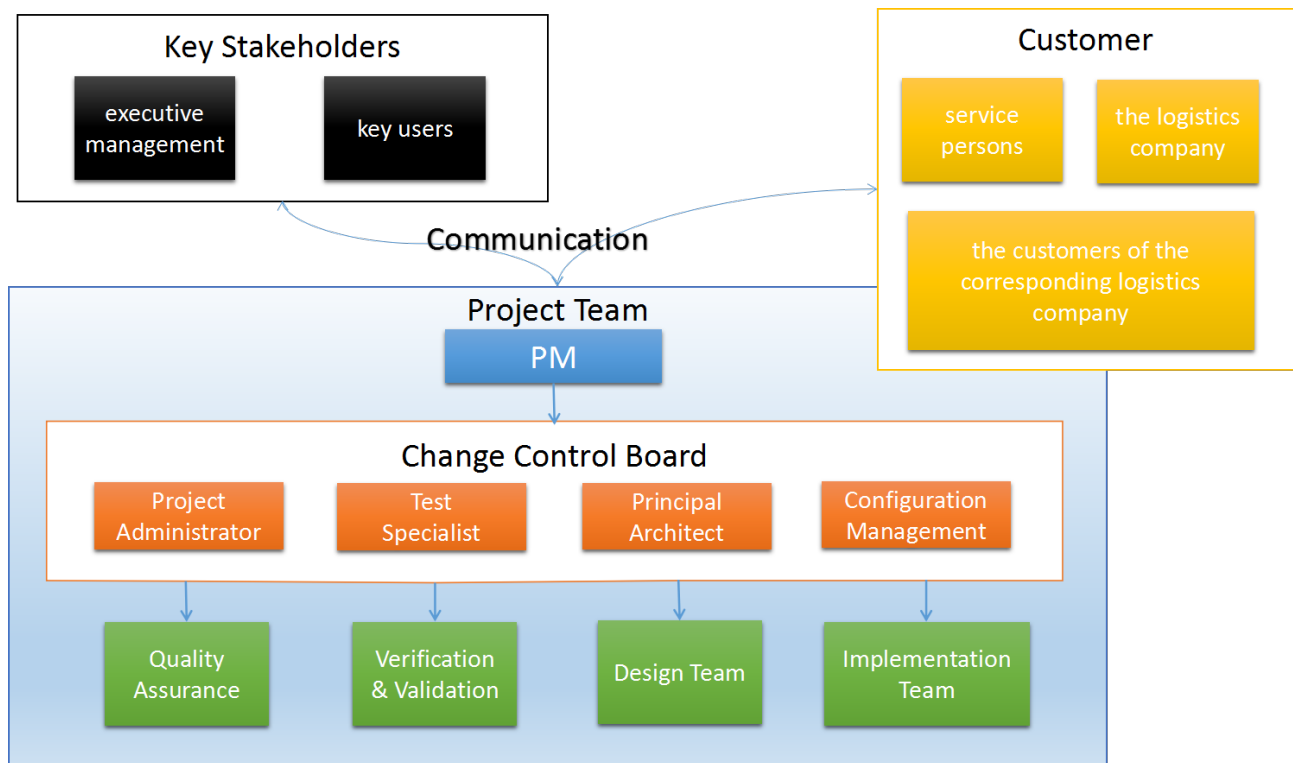
5. Resource Management

5.1 Software Resource Management

5.1.1 Code Management:

· Version control: use code version control tools to help us to manage source code, such as SVN.
· Code reuse: encapsulate code to library or sub-system which can be reused for other project.
· Document Management:
        · Design documents: manage the documents about system architecture, coding design.
        · Communication documents: manage the documents about meeting sessions and some work communication e-mail.
        · Summarization documents: manage the documents about develop summary and technologic experience.

5.2 Hardware Management

· choose proper hardware
· make a hardware purchasing plan
· maintain the hardware which are under using

· update hardware timely

6. Cost & Benefit Detail & Profit Predict

The cost is estimated based on our project plan and schedule. The cost include hardware , software cost and the cost of staff. The revenue is calculated based on the value of the market for the product and the market share that the product can capture. The growth of the revenue is set to 3%, which we believe is suitable. And we have an income in fourth and fifth year in advertisement.

As we have estimated the cost and revenue. Now we can get net cash flow, than we calculate the NPV and IRR using excel. In terms of IRR and NPV, the product is worth to invest. And it's benefit is accepted.

NPV (Net Present Value)

NPV is an approach used in capital budgeting where the present value of cash inflows is subtracted by the present value of cash outflows. It measures the profitability of a project by comparing the value of a dollar today to the value of that same dollar in the future, taking inflation and returns into account. NPV analysis is sensitive to the reliability of future cash inflows that an investment or project will yield.

$$NPV = \sum_{t=1}^{T} \frac{C_t}{(1+r)^t} - C_o$$

C = Cash flows, in, or out, of the project; r is the discount (interest) rate per period (t)

IRR (Internal Rate of Return)

IRR is the interest rate that makes net present value of all cash flow equal zero. Often used in capital budgeting.

$$0 = PW(i^*) = \sum_{t=0}^{n} F_t (1+i)^{-t}$$

DPP (Discounted Payback Period)

DPP is the year you need to recover the investment.

$$\sum_{t=0}^{n} F_t (1+i)^{-t} \geq 0$$

year	0	1	2	3	4	5
			OUTPUT			
output equipment	199.9					
Third-party service		6	6	6	6	6
Staff related	32					
output staff(FTE)		2400	2400	2400	2400	2400
		200	200	200	200	200
staff		12	12	12	12	12
O&M cost		100	100	120	120	120
general		20	20	20	20	20
SUM of OUTPUT	231.9	2526	2526	2546	2546	2546
			INPUT			
Last year revenue		2600	2600	2678	2758.34	2877.2985
growth			0.03	0.03	0.025	0.02
real revenue		2600	2678	2758.34	2827.2985	2934.84447
advertisement					50	100
SUM of INPUT		2600	2678	2758.34	2877.2985	3034.84447
net cash flow	-231.9	74	152	212.34	331.2985	488.84447
IRR			65.18%			
NPV(i = 10%)			591.2			
DPP			2.64年			

6.1 Detail

output equipment	cost
Hard ware including PC, router,mobile device etc.	12 * 7 + 0.3 * 3 + 4 * 10 = 124.9
Office supplies	53
Software including OS, IDE, Database etc.	0.6 * 10 + 1 + 10 + 5 = 22
Total	199.9

Third-party service	Cost
Network cost	2
API renting cost	3
Reusable component	1
Total	6

Staff related	Cost
Staff recruit	10
Staff training	0.6 * 20 = 12
Team building	10
Total	32

7. Risk Management

The cost and revenue is estimated based on some assumptions. In able to know the risk of our project will meet, we estimated the cost and revenue in pessimistic and optimistic situation. As the result of the table below show, the NPV and IRR in the pessimistic situation is also accepted. So our project is under low risk. The most likely outcome of the investment is an IRR of 65.18%.

	Pessimistic	Expected	Optimistic
		OUTPUT	
Hard ware including PC, router,mobile device etc.	135	125	115
Office supplies	58	53	48
Software including OS, IDE, Database etc.	23	22	21
Network cost	3	2	1
API renting cost	3.5	3	2.5
Reusable component	1.5	1	0.5
Staff recruit	12	10	8
Staff training	14	12	10
Team building	12	10	8
Third-party service	9	6	3
Staff related	35	32	29
output staff(FTE)	2520	2400	2280
O&M cost	130	110	90
general	22	20	18
		INPUT	
real revenue	2500	2600	2700
advertisement	0	50	100
NPV	370.5	591.2	641.2
IRR	26%	65.18%	71%
DPP	3.43	2.64	1.64