Risk Mitigation, Monitoring and Management Plan

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# 1 Introduction

## 1.1 Scope and intent of RMMM activities

The goal of the risk mitigation, monitoring and management plan is to find possible risks and determine what the potential risks are. Some risk checklist in the website could help to identify potential risks as references in a project. After all potential risks have been determined, they will evaluate their possibility of occurrence, then choose a best way to mitigate these risks that have high possibility of occurrence and taking action to monitor and manage. This plan can greatly help us to mitigate, monitor and manage risks in order to produce a quality product.

When RMMM plan is finished, every probability of risks are be ensure. Project can be completed more fluently. Then have more time to design product and this product will be better than no RMMM plan. In addition, software functions will be more perfect.

## 1.2 Risk management organizational role

Each group member all has responsibility to join risk management, which can monitor the whole project development and identify most of the risks. During the early development of product, everyone must know the functions, scope and requirements, and organize multiple discussion. Even members do not implement the project, they also should pay attention on potential risks in every stage. When a goal have finished, there need to detect and confirm this task no mistake. Therefore the analysis of risk management should be undertaken by each member of the organization.

# 2 Identify Project Risks

Major risks we have determined for this software are as follows:

* Customer risks:

- Update requirement

* Employee risks:

- Lack of experience of development software

- Lack of related technical skills

- Change in project management

* Product risks:

- Some bug maybe exist

* Development risk

- Deviation from software engineering standards

- Data missing

- Over deadline

* Finance risk

- Over budget

* Resource risk

- Lack of good equipment

- Poor resource allocation

# 3 Description of risk classification

## 3.1 Customer Risks

This risk depends on the attitude of customers. Due to the software is designed for users. It needs to meet all requirements from customer. Some risks from customer include whether the customer has solid idea of software requirements, whether the customer are willing to establish rapid communication link with developers, whether the customer willing to let your people do this job and so on. Customers play an important role in whole project process as well as become an uncertain factor to limit the project development.

## 3.2 Employee Risks

This risk will come out when employees lack of experience. To be specific, employees are unclear about which specific methods used for software analyze, which method for data and architectural design and other technical issues for project development. It will bring a number of problems for employees and cause anxious. The project development will need more time and energy.

## 3.3 Product Risks

This risks is depend on the product availability. It is important that the product should meet customer needs at most extent and can effectively and quickly solve the problems. In addition, the product can be update on time when appear some bugs.

## 3.4 Development Risks

This is the risk where concern is that the conditions in the development process. Clients need to give a standard before employee start, and employee must develop software base on this standard. Moreover, over deadline for every steps during software development also belong to the development risks.

## 3.5 Financial Risks

This is the risk that related to finance problem, which always happen when cost management in planning phase has not concern about every aspect cost or finance support limit the project spending.

## 3.6 Resource Risks

This risk define the trouble that come from insufficient resource in the project development, such as equipment and files, low quality of necessary resource and unreasonable resource allocation.

# 4 Analyzing the probability of identified risks

* Update requirement
* It is possible that customers want to change some requirements during the development process.
* Lack of experience of development software
* It unlikely occur on some employees who have worked on this job for a short time.
* Lack of related technical skills
* It unlikely occurs on some employees who lack some professional skills to finish a task dependently.
* Change in project management
* It likely happens on project manager or team leader who change their project planning during development process.
* Some bug maybe exist
* It always happen on programming for develop a project.
* Deviation from software engineering standards
* It is unlikely to occur for employee who misunderstand the project requirements, which leads to product cannot meet expectation.
* Data missing
* It is possible that some statistics or data files miss during the development process.
* Over deadline
* It is possible that some phase spend more time or time management is not reasonable, which results in the deadline of project finishing delay.
* Over budget
* It is unlikely to occur because cost management is unreasonable or finance support limit project spending.
* Lack of good equipment
* It is unlikely to occur since some resource are out of advance that cannot support current project development.
* Poor resource allocation
* It rarely occur in development because it could adjust in a short time.

# 5 Risk likelihood table

|  |  |  |
| --- | --- | --- |
| **Rating** | **Expression** | **Probability Range** |
| Almost Certain | The event will almost certainly occur in the timeframe of the project | 80-99.99% |
| Likely | The event is expected to occur in the timeframe of the project | 60-79.99% |
| Possible | The event may occur in the timeframe of the project | 40-59.99% |
| Unlikely | The event is unlikely to occur in the timeframe of the project | 15-39.99% |
| Rare | The event would rarely occur in the timeframe of the project | .01-14.99% |

# 6 Analyzing the impact of identified risks

* Update requirement
* It could influence the rate of project and make the project plan change, so its impact is major.
* Lack of experience of development software
* It could influence the efficiency of project development and if the number of employee who lake of experience is large, the product quality will be low. So its impact is major.
* Lack of related technical skills
* It could influence the successful achieving of product, but it gets helps from other professional team member, so its impact is moderate.
* Change in project management
* It has negative influence on the rate of project, which also leads to change initial change for every project team, but the change is not considerate, so its impact is moderate.
* Some bug maybe exist
* It influences the achieving of project product, but bugs in programming could be modified during a period, so its impact is moderate.
* Deviation from software engineering standards
* It have a significant impact on the failure of whole project, so its impact is Catastrophic.
* Data missing
* It also negatively influence the rate of project development, but it hard to be solved in a short time, so its impact is major.
* Over deadline
* It could not finish the whole project before the deadline, which results in decreasing the credibility of customer, so its impact is major.
* Over budget
* It will influence directly whether the project could complete in the end or nor, because every phase will spend money, so its impact is major.
* Lack of good equipment
* It has some impact on delay the rate of project, but it could be solved in a short time, so its impact is minor.
* Poor resource allocation
* It has some impact on delay the rate of project, but it could be solved in a short time, so its impact is minor.

# 7 Risk impact table

|  |  |  |
| --- | --- | --- |
| **Rating** | **Description** | **Impact Score** |
| Catastrophic | This would seriously threaten the continuance of the project. Project 'Showstopper | 5 |
| Major | This would have a significant effect on the project and could threaten it's continuance. | 4 |
| Moderate | Impact on the project but would not threaten its continuance. | 3 |
| Minor | Minimal impact on the project. | 2 |
| Insignificant | No significant impact on the project. | 1 |

# 8 Ranking risk table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Risks** | **Category** | **Probability** | **Impact** | **Risk Rate** |
| Some bug maybe exist | Product Risks | 80% | 3 | 2.4 |
| Data missing | Development Risks | 50% | 4 | 2.0 |
| Update requirements | Customer Risks | 60% | 3 | 1.8 |
| Over deadline | Development Risk | 40% | 4 | 1.6 |
| Over budget | Finance Risk | 35% | 4 | 1.4 |
| Changes in project management | Employee Risks | 40% | 3 | 1.2 |
| Lake of related technical skills | Employee Risks | 35% | 3 | 1.05 |
| Lack experience of development software | Employee Risks | 20% | 4 | 0.8 |
| lack of good Equipment | Resource Risks | 35% | 2 | 0.7 |
| Deviation from software engineering standards | Development Risks | 10% | 5 | 0.5 |
| Poor resource allocation | Resource Risks | 15% | 2 | 0.3 |

# 9 Classifying risk table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Risks** | **Monitor** | **Mitigation** | **Managed** | **Ignored** |
| Some bug maybe exist | √ | √ |  |  |
| Data missing | √ | √ |  |  |
| Update requirements |  |  | √ |  |
| Over deadline | √ | √ |  |  |
| Over budget | √ | √ |  |  |
| Change in project management |  |  | √ |  |
| Lake of related technical skills |  | √ | √ |  |
| Lack experience of development software |  | √ | √ |  |
| Lack of good Equipment | √ | √ | √ |  |
| Deviation from software engineering standards | √ | √ | √ |  |
| Poor resource allocation |  |  |  | √ |

# 10 Classifying risk description

* **Product Risks: Some bug maybe exist**
* **Monitoring**

When the program can not run or run in the problem, there maybe come out bug. This will lead to customer dissatisfaction.

* **Mitigation**

There need to a lot of test before a project have finished. When bug come out, it can be fix soon. And every code need to have notes, help programmer to find error. Every part of code need to be repeated examination.

* **Data missing**
* **Monitoring**

When some statistics or data files miss during the development process, it may cause some functions cannot be performed and have a bad influence in entire project.

* **Mitigation**

Each member need to do a lot work for check of data integrity. And confirm there no data miss and every function is ready. In addition, there need to prepare data backup avoid accident appear.

* **Update in requirements**
* **Management**

During the project creation process, the previous analysis maybe is not sufficient, and there need to add or delete some requirements. Identify requirement correctly can help project to develop without a hitch. When this problem happen, each member needs to do a good job of coordination. Analyze exist problem to modify plan and assign new task reasonably.

* **Over deadline**
* **Monitoring**

There are an accurate deadline in the plan when the project begin. If over deadline, it mean task is failed because the project cannot perform on time. This may cause client feel confuse.

* **Mitigation**

Before project begin, there need a explicit plan. Assign tasks and time to each person reasonably. Each member need to write their diary for recording process of project and confirm project can be finished before deadline.

* **Over budget**
* **Monitoring**

During the project development, some unexpected new expenses maybe appear, This will cause the overhead is more than the plan budget. It is a unfavorable factors for the project development and may cause efficiency of project decrease.

* **Mitigation**

Before project begin, there need to prepare enough fund for confirming project can be finished smoothly. During the project development, each task need to reduce unnecessary expenses and mitigate the probability of this risk.

* **Change in project management**
* **Management**

Each member need to be assigned enough time by group leader. The workload also need to be fairly allocated between each member. The plan be finished as much as possible on time

* **Lack of technical skills**
* **Mitigation**

Know ability of every group member, assign task must be according to everyone ability. If no one have ability to solve some question, it can arrange someone to read book about this aspect. This can shorten the gap between expectation and reality.

* **Management**

Fully understand the reality about everyone ability and organize the discussion. Confirm everyone task and finish every goal according plan. Reading a number of book to ensure project can be finished.

* **Lack of experience of development software**
* **Mitigation**

Before the beginning of the task, in the library to access all kinds of information, learning experience. Then organize group discussions and confirm the best plan. This can reduce unnecessary waste of time.

* **Management**

Lack experience of designing software is not a key factor. There can cost more time to think and solve problem. When making plan, it need to be assigned additional time on designing software.

* **Lack of good Equipment**
* **Monitoring**

When the work carry out, the lack of equipment running or equipment more than the load. It cause work can not continue. Finally, there need to a better device.

* **Mitigation**

Before the task carry out, confirm whether everything is ready, and test the existing equipment. It can avoid this risks happen in work.

* **Management**

Every equipment need to prepare and test. There need to be a regular check. And ensure the progress of the task no error.

* **Deviation from software engineering standards**
* **Monitoring**

Deviation cannot be avoid in first time. There need a lot time to inspect. Each group member must know software engineering standard.

* **Mitigation**

Thorough understanding of standards, continuous testing and feedback. Everyone must read the software engineering standards. And each member mutual supervision, confirm no deviation. It can reduce deviation when project finished.

* **Management**

If there are some Deviation from software engineering standards, this part must be do again to ensure no problem. It is a serious problem, everyone must remember. Organize more discussion can solve this question more effective.

* **Poor resource allocation**
* **Ignored**

The perniciousness of this risk is low. When this risk appear, it will delay the rate of project. However, it can be solved in a short time.