RISK MANAGEMENT PLAN

For
CAPSTONE TEAM APERTURE

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1 Introduction

1.1 Purpose

The purpose of this document is to provide a means to identify and categorize any possible risks which may arise from or affect the development of PSU Capstone Team Aperture's project, Aperture VMAN (name subject to change), and to provide strategies to avoid or mitigate those risks. It also provides procedures for documenting the implementation of those strategies, and for regular status reporting to stakeholders.

1.2 Scope and Context

This document has been created primarily for the stakeholders in Aperture VMAN, which include the project sponsor PAST&E (hereafter referred to as 'the client'), and upper management in the Portland State University Computer Science Capstone Consortium (hereafter referred to as 'PSUCSCC'). It is also meant to provide guidance to the team in order to increase the chances of project success.

1.3 Reference Documents

http://it.toolbox.com/blogs/enterprise-solutions/the-risk-management-plan-12038

http://www2.gsu.edu/~wwwpmo/risk_management.html

2 Risk Management Approach

2.1 Risk Defined

In general, risk can be defined as the product of the potential losses due to some event, and the probability of that event's occurrence. In our case, risks arise from any event which could:

- Prevent or delay the completion of project tasks.
- Prevent or delay the completion of the project as a whole.
- Cause an unfavorable response from the client.
- Otherwise result in an unsatisfactory project outcome.

These are grouped into three 'risk areas' for the purposes of our risk management procedures:

- Schedule - Delays of any kind.
- Scope - Reductions in the feature set of the project.
- Quality - Reductions in the stability or usability of the project.

Because of the hard time limits imposed by PSUCSCC, schedule risks are considered to be the most severe, followed by quality and scope.

2.2 Concept of Risk Management

Risk management is generally understood to be the identification and classification of risks, and the implementation of risk control strategies to manage each risk. There are four commonly used strategies to manage risk:

- Avoidance
- Mitigation
- Transfer
- Retention

In this particular project, Transfer of risk to a third party is not available as a risk control strategy, due to the limitations imposed by PSUCSCC. Therefore, this team will only utilize avoidance, mitigation, and retention strategies to manage risk.

2.3 Risk management approach for Aperture VMAN project

PSU Capstone Team Aperture will apply the following risk management approach:

- All team members will assist in identifying risk.
- Each identified risk will be analyzed in terms of its probability of occurrence and its impact.
- This analysis will be used to categorize each risk.
    - High-exposure risks will be given priority over low-exposure risks.

- All team members will assist in suggesting ways to minimize risks.
- Individual planning will be done for each identified risk, starting with high-priority risks.
    - Individual plans will consist of specific actions to be taken by specific actions in specific time frames.
- Progress will be monitored and individual plans and risk priorities will be adjusted as necessary.

2.4 Methodology

The risk definition stage will follow the process shown in Fig. 1. This process will be repeated periodically throughout the development of the product, or in the event that an individual risk management plan affects the priority of to other risks. The risk management stage will follow the process shown in Fig. 2.

I. Risk Definition.
    A. Identification
    B. Analysis
    C. Prioritization.
II. Risk Management
    A. Planning
    B. Acting
    C. Monitoring, Reporting, and Adjusting.

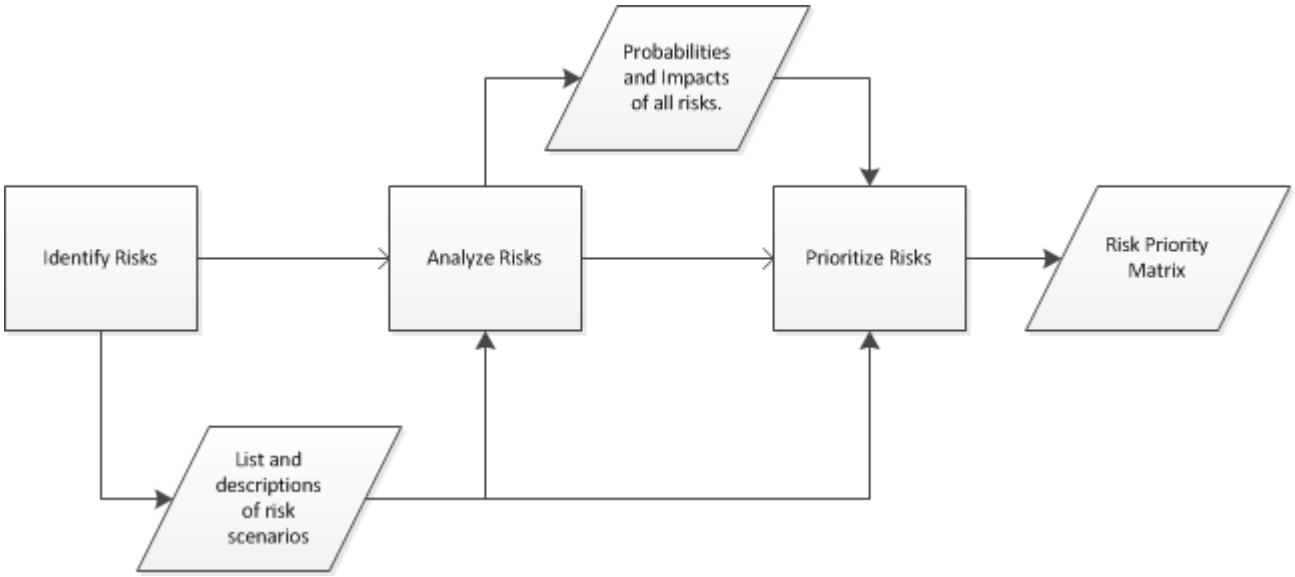

Fig. 1: Risk definition process.

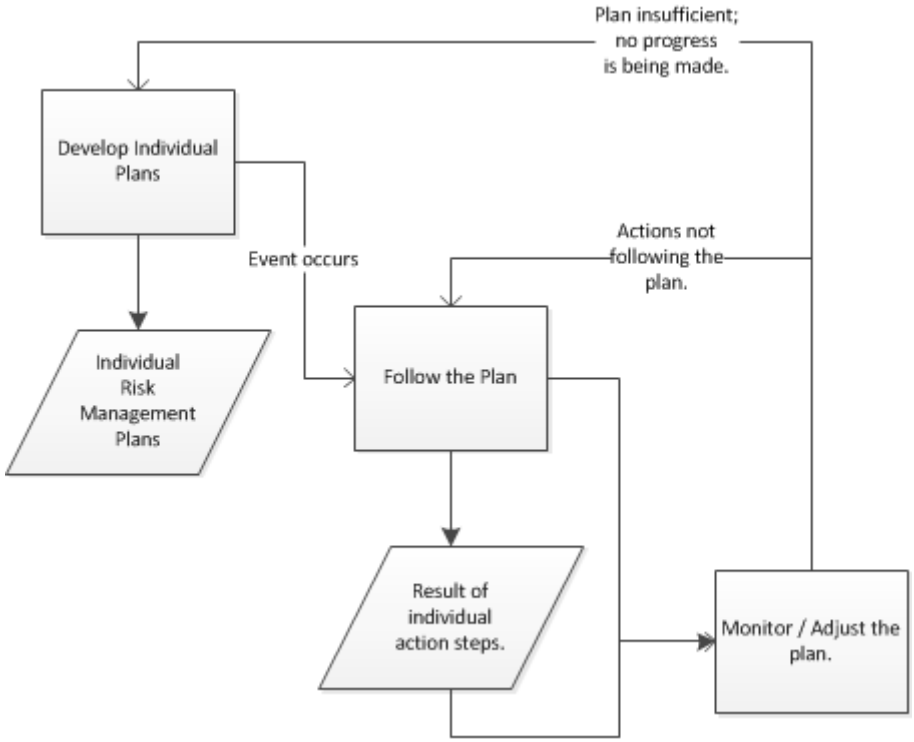

Fig. 2: Risk management process.

3 Defining Risks

3.1 Risk Identification

3.1.1 Generic Risks

These are referred to as 'process risks' for the purposes of this team, and encompass risks unrelated to the technical aspects of the software development cycle, such as personnel issues (for example: a team member leaving the group prematurely for any reason).

3.1.2 Risks specific to Aperture VMAN

These are referred to as 'product risks' for the purposes of this team, and encompass risks arising from the development of Aperture VMAN. This would include technical risks from every phase of the software development cycle (for example: the requirements documentation proving inadequate, or developer inexperience with the development platform and toolchain).

3.1.3 Risk Identification Sheet

When a risk is identified, a risk identification sheet will be filled out. This sheet is available as Google Documents spreadsheet form, found here:

https://docs.google.com/spreadsheet/viewform?formkey=dGxvR1hJamczS3BOQldKZWdtUC1fOHc6MQ

3.2 Risk Assessment and Prioritization

3.2.1 Risk Assessment

Following risk identification, the risk coordinator will assess the probability of occurrence and record it on the risk identification sheet.

3.2.2 Risk Exposure Calculation

The risk coordinator will add the information from the risk identification sheet to a Risk Log spreadsheet, which will store the determined impact rating (either low, medium, or high) and probability of occurrence (either low, medium, or high), and use these to calculate the risk exposure, which is the product of the two.

3.2.3 Risk Prioritization

The risk coordinator will then sort the risk log spreadsheet in descending order by risk exposure. The highest priority risks will appear at the top of the list. As risks are managed, the spreadsheet shall be updated with new impact and probability values, and re-sorted to reflect changing priorities.

4 Managing Risks

4.1 Risk Management Planning

Priority Order

The team lead will focus on the highest priority risks to exist at any given time. At each regular team lead meeting, he will go over the ten highest-priority risks in the risk log spreadsheet with PSUCSCC management.

Initial Screening
When the risk management plan is officially submitted along with the initial copy of the risk log spreadsheet, the team lead will review each identified risk along with the rest of the team, and confirm or adjust the impact and probability assigned by the risk coordinator as needed to achieve consensus.

4.2 Individual Risk Management Plans

Purpose

An individual risk management plan defines a specific course of action for managing a particular risk. It is developed by a team member selected by the team lead.

Contingencies

Alternative approaches to managing a risk may exist. In this case, these will be developed independently following the same procedures. One will be selected by the team lead as the primary risk management plan, while the rest will be kept as contingency plans.

Contingency Selection

Each individual plan for a given risk is submitted to the team lead for review and approval. The team lead will judge the plans based on (in order of importance):

1. Probability of success.
2. Impact of implementing the plan on schedule.
3. Impact of implementing the plan on quality.
4. Impact of implementing the plan on scope.

The team lead will then select the most appropriate plan as the main response strategy. The team lead shall not approve a plan if the impact of implementing it exceeds the impact of the risk itself.

Implementation

Each step in an individual risk management plan is assigned to a specific individual. Progress will be monitored by the risk coordinator and the risk log spreadsheet updated as each step is completed.

4.3 Monitoring and Adjusting Plans

At each weekly team lead meeting, the status of the top-10 risks will be reviewed with PSUCSCC management. There are three possible statuses:

1. The plan is being followed and it is successfully managing the risk.
2. The plan is being followed and it is failing to manage the risk.
3. The plan is not being followed.

4.3.1 Risk Management is Successful

If the individual risk management plan is being followed and there are reductions of either probability of occurrence or impact, then the risk management log shall be updated to reflect this.

4.3.2 Risk Management is Unsuccessful

If the individual risk management plan is being followed but no improvements are seen, then the team leader will review the individual risk management plan and take appropriate action:

1. The contingency plan (if any) will be activated.
2. A new individual risk management plan will be developed taking into account the failure of the previous one, or
3. The current individual risk management plan will be altered to increase its effectiveness.

4.3.3 Plan Not Followed

If it becomes clear that the individual risk management plan is not being followed by the assigned individuals, corrective action will be taken by the team lead. This may include any combination of:

1. An in-person meeting with the responsible individual regarding the reasons for inaction.
2. The assignment of new responsible individuals.
3. The restart of the risk resolution process with new due dates (visibility of the inaction will be escalated to the weekly team lead meeting and PSUCSCC management).

5 Risk Reporting

5.1 Status Reporting

The complete risk log spreadsheet will be attached to the weekly status report to the PSUCSCC.

5.2 Risk Management Summary

At the end of each phase of the project, a summary report shall be prepared for the stakeholders to detail the progress made to date in managing project risks. This report will include a list of outstanding risks, their statuses, and the individual risk management plans used at time of issue.

Appendix A - Glossary of Terms

Avoidance:
A risk control strategy focused on preventing the occurrence of a risk-posing event.

Impact:

Any negative effect on schedule, product quality, or product scope.

Mitigation:

A risk control strategy focused on reducing the impact of a risk-posing event.

PSUCSCC:

The Portland state university computer science capstone consortium, the entity to which this software development team is answerable.

Retention:

A risk control strategy focused on being prepared to accept the impact of a risk-causing event.

Transfer:

A risk control strategy focused on reassigning the responsibility for a risk-posing event to a third-party.