Risk Management Plan

TDDC88 - Project - Company 3

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October 2024

1 Document Change History

Note: This change history table was generated by Autoleaf AI under the supervision of the Technical Writer. Only the most significant changes are highlighted, check the readme for more detailed information.

Ver.	Date	Modified Areas	Changed By	Description of Changes
2.0	2024-10-17	Risk Identification, Risk Description, Risk Analysis, Risk Monitoring	Chioma	Introduces a visual Risk Breakdown Structure, expands risk categories, and provides a detailed contingency plan.
1.0	2024-09-15	Multiple sections	Project Manager	Establishes the initial structure and content of the Risk Management Plan.

2 Introduction

The purpose of this Risk Management Plan is to identify, assess, and mitigate potential risks that may arise during the execution of our software engineering project with Axis Communications. The risk management ensures that the project progresses smoothly, remains on schedule, and stays within the allocated budget. By proactively addressing potential challenges, we aim to minimize disruptions and maximize the likelihood of project success.

This document outlines the framework for identifying, categorizing, and responding to risks associated with the project, including technical, financial, operational, and resource-related risks. As students working on this project, we recognize that uncertainties may emerge from several factors such as limited technical expertise, resource constraints, and external dependencies.

The Risk Management Plan provides a structured approach to handling these uncertainties by detailing:

- **Risk Identification**: A systematic process to identify and document potential risks that could impact the project.
- **Risk Description**: An explanation of each identified risk to give more context.
- **Risk Analysis**: A quantitative evaluation of identified risks to understand their likelihood and impact.
- **Risk Planning**: Actions and contingency plans to reduce the impact or likelihood of high-priority risks.
- **Risk Monitoring**: Ongoing evaluation of risks throughout the project lifecycle to adapt to new challenges.

Contents

By following this Risk Management Plan, our team is committed to staying proactive and adaptable in handling risks that may affect our progress.

3 Risk Identification

Through the Risk Breakdown Structure below, potential risks that may impact the project are identified, categorized, and described for further analysis and mitigation.

4 Risk Description

As the diagram above illustrates, the project risk can be divided into six prominent areas:

4.1 Staffing Risk

- **Quitting Members:** Team members leaving before project completion can cause delays and quality issues.
- **Conflicts:** Disagreements among team members can hinder collaboration and productivity.
- **Communication Issues:** Poor communication can lead to misunderstandings and project delays.
- **Different Ambitions:** Varying levels of commitment and goals among members may lead to disagreements.
- **Illness:** Health issues lead to unexpected absences.

4.2 Security Risk

- **GDPR Compliance:** Non-compliance with data protection regulations can result in legal issues.
- **Data Breaches:** Inadequate safeguards expose sensitive information.
- **User Negligence:** Human error increases the risk of breaches.

4.3 Technical Risk

- **Technology Employed:** Dependency on third-party tools that may become deprecated or unsupported.
- **Technical Processes:** Risk of losing critical code due to lack of version management.
- **Scaling Technology:** Infrastructure might fail to scale effectively under high load or multiple users.
- **Testing:** Limitations in testing environments may affect the ability to test all scenarios.

4.4 Requirement Risk

- **Scope and Objectives:** Misunderstandings lead to unmet expectations.
- **Miscommunication:** Lack of clarity causes project delays.
- **Failure to Meet Expectations:** Discrepancies between deliverables and requirements.
- **Scope Creep:** Uncontrolled addition of features without adjusting timelines or resources.

4.5 Estimation Risk

- **Inaccurate Time Estimates:** Underestimating time required for tasks can cause missed deadlines.
- **Underestimation of Complexity:** Tasks may be simpler than they seem, leading to unexpected development issues.
- **Insufficient Buffer:** Lack of contingency time for unexpected issues.
- **Lack of Task Breakdown:** Unclear tasks complicate time management.

4.6 Organizational Risk

- **Unclear Responsibilities:** Ambiguity in roles can cause misalignment and missed deadlines.
- **Unclear Role Definition:** Hesitation in decision-making hampers progress.
- **Task Overload:** Burnout decreases productivity and morale.
- **Decision-Making Bottlenecks:** Delays occur when too few people make decisions.
- **Individual Time Tracking:** Tracking of individual effort through a common time report may be misused, leading to uneven workloads. This unfairness could cause frustration between employees. Currently, each individual must weekly report the time spent on the project each day. Since this is a manual and independent task, an employee might forget to log time or log time they haven't actually worked.

5 Risk Analysis

To assess risks, both probability and impact are rated on a scale from 1 to 4, with 1 denoting the lowest level and 4 the highest. The overall risk magnitude is determined by multiplying the probability by the impact, producing a value ranging from 1 to 16.

$$\text{Risk Magnitude} = \text{Probability} \times \text{Impact}$$

Probability	1 - Insignificant	2 - Tolerable	3 - Serious	4 - Catastrophic
1 - Low	1	2	3	4
2 - Moderate	2	4	6	8
3 - High	3	6	9	12
4 - Very High	4	8	12	16

Impact

5.1 Staffing Risk

Risk Name	#	Risk Description & Plan	Probability	Impact	Risk Factor
Staffing Risk	1	**Quitting Members:** A project member quits the course.	1	3	3
		Contingency plan: Follow the contingency plan for sick and or absent members.			
	2	**Communication issues:** Communication issues arise that lead to misunderstandings and project delays.	4	2	8
		Avoid risk: Establish clear communication channels and regular updates.			
	3	**Ambition Misalignment:** Different ambitions among team members become apparent as the project proceeds.	4	1	4
		Avoid risk: Continuous alignment goals through regular meetings.			
	4	**Risk Description:** A project member falls ill	2	2	4
		Contingency plan: Follow the contingency plan for sick and or absent members.			

5.2 Security Risk

Risk Name	#	Risk Description & Plan	Probability	Impact	Risk Factor
Security Risk	1	**GDPR Compliance:** It has been found that GDPR regulations are not being adhered to.	3	3	9
		Avoid risk: Ensure GDPR compliance is planned for and integrated early in the project planning phase.			
	2	**Data Breaches:** Inadequate safeguards expose sensitive information.	2	3	6
		Avoid risk: Continuously prioritize robust data security measures throughout all iterations of the project.			
	3	**User Negligence:** Human error causes data breach	3	3	9
		Avoid risk: Continuously prioritize robust data security measures throughout all iterations of the project.			

5.3 Technical Risk

Risk Name	#	Risk Description & Plan	Probability	Impact	Risk Factor
Technical Risk	1	**Technology Employed:** Third-party tools like Microsoft Planer, Microsoft AZURE, Teams become suddenly unavailable.	1	3	3
		Mitigation: Identify a reliable third-party tool that offers comparable functionality to serve as a backup. For example, consider using Google Sheets as an alternative to Microsoft Planner.			
	2	**Technical Processes:** Critical code is lost due to lack of version management.	3	3	9
		Avoid risk: Emphasize the importance of adhering to proper GitLab push and pull etiquette consistently and timely throughout all project iterations.			
	3	**Scaling Technology:** Kubernetes may experience failures under heavy load or when accessed by numerous users simultaneously.	3	4	12
		Mitigation: To mitigate this risk, implement scalable infrastructure solutions, such as load balancing and cloud services, to ensure stability during peak usage times.			
	4	**Testing Enviroment:** Resource and testing environment limitations may hinder scenario testing, potentially increasing program bugs.	3	3	9
		Mitigation: Ensuring adequate resources and diverse testing environments are available to comprehensively test all scenarios before deployment.			

5.4 Requirement Risk

Risk Name	#	Risk Description & Plan	Probability	Impact	Risk Factor
Requirement Risk	1	**Scope and Objectives** Miscommunication and misunderstanding between analysts and stakeholders and analysts and developers.	2	3	6
		Avoid risk: Establish regular communication channels and collaborative meetings among analysts, stakeholders, and developers to ensure clarity and alignment throughout the project. Work iterative and adhere to agile methodology			
	2	**Failure to Meet Expectations:** Stakeholder expectations are not met.	3	4	12
		Avoid risk: Set clear objectives and performance metrics from the outset, and regularly review progress in accordance with the software requirement specification (SRS) to ensure alignment with expectations.			
	3	**Scope Creep:** Expansion of project scope beyond original plans.	2	3	6
		Mitigation: Establish a strict change control process to evaluate and approve any modifications to the project scope, ensuring that all stakeholders are aligned and that impacts on timelines and resources are assessed.			

5.5 Estimation Risk

Risk Name	#	Risk Description & Plan	Probability	Impact	Risk Factor
Estimation Risk	1	**Underestimation of Complexity and Time Estimates:** Tasks take more time than initially thought and are more complex	3	4	12
		Avoid risk: Conduct a detailed requirements analysis and engage in iterative reviews with stakeholders to refine complexity assessments and time estimates, ensuring that potential challenges are identified and addressed early in the project.			
	2	**Insufficient Buffer** Lack of slack time for unexpected issues	3	3	9
		Avoid risk: Implement a planning strategy that includes building in a sufficient buffer for both time and resources, allowing flexibility to accommodate unforeseen issues without jeopardizing project timelines.			
	3	**Lack of Task Breakdown:** Unclear tasks as iterations proceed	3	3	9
		Avoid risk: Ensure a comprehensive task breakdown by creating a detailed work breakdown structure (WBS) that outlines each task, its dependencies, and the responsible parties, facilitating better planning and tracking of project progress.			

5.6 Organizational Risk

Risk Name	#	Risk Description & Plan	Probability	Impact	Risk Factor
Organizational Risk	1	**Unclear Roll Definitions and Responsibites:** Unclear role definitions and responsibilities due to cross functional teams that lead to overlap in tasks, and missed deadlines.	1	2	2
		Avoid risk: Establish clear role definitions and responsibilities through regular status reports and follow up meetings.			
	2	**Task Overload** Project member(s) are assigned too many responsibilities, leading to decreased productivity, increased stress, and a higher likelihood of errors.	3	3	9
		Avoid risk: Implement workload management practices by regularly assessing team capacity, prioritizing tasks, and redistributing work as necessary to ensure a balanced workload for all project members.			
	3	**Decision-Making Bottleneck:** Critical decisions are delayed due to Project Manager absence, Architect absence or lack of clear processes.	1	4	4
		Avoid risk: Establish clear decision-making protocols, delegate authority appropriately, and empower team members to make decisions within their areas of responsibility to streamline the decision-making process and prevent bottlenecks.			
	3	**Individual Time Tracking:** Tracking of individual effort through a common time report may be (purposely or involuntarily) misused, which enables uneven workloads to exist within the company.	3	3	9
		Avoid risk: Establish clear guidelines for individual reporting of time, including what to report, when to report, how to report, and why each individual is obliged to report their time. Furthermore, both the total time spent for each employee and a burn-down chart for the company's time is available in the same excel as the Time Report, with the aim to encourage employee to match their effort to that of the rest of the company.			

6 Risk Planning

The Risk Planning details proactive strategies for managing identified risks throughout the project. By implementing these measures, the project aims to minimize potential disruptions and ensure successful outcomes. Among the various risks we face, employee sickness stands out as one of the most significant. This underscores the necessity of having a robust contingency plan in place, ensuring that we can adapt and respond effectively to any health-related challenges that may arise.

6.1 Contingency Plan

1. The project member should contact their direct manager or project manager as soon as possible, preferably before their shift starts.
2. The direct manager or project manager notes the project member's name, date of notification, and reason for absence.
3. The direct manager or project manager assesses the project member's current workload and identifies tasks that need immediate attention.
4. Assign the project member's tasks to other team members to ensure work continues without major disruptions.
5. Notify the team about the project member's absence and the temporary redistribution of their duties without disclosing personal details. If necessary, inform the CEO or examiner of any changes or delays.
6. Remind the project member to focus on their health and recovery. Share information about health resources or employee assistance programs.
7. After a few days, the direct manager or project manager should reach out to see how the project member is feeling and discuss their return to work.
8. Ensure the project member is fit to return before they come back.
9. After the project member returns, discuss what went well and what could be improved in the response to their absence.

Apart from risks related to illness, the strategies for the previously mentioned risks are as follows:

7 Risk Monitoring

Ongoing evaluation and monitoring of risks will be conducted to ensure that mitigation strategies are effective and to address new risks as they emerge throughout the project lifecycle.

IMAGINE A TABLE ABOUT CURRENT RISKS

7.1 Measurement of Individual Time Tracking:

On each Manager meeting, held on Monday lunch, the Project Manager and the Line Managers follow up the past weeks hours spent on the project and compare different groups, teams, and individual situations, to assess if the time spent is fair and in accordance to the expectations for that time frame. Th Process Manager has therefore constructed individual burn-down charts for each employee.

After the Pre-Study phase and Iteration 1 it is clear that some groups have spent more time on the project, especially the Managers and the Analysts. However, this is to be expected as groups, such as, Developers and Testers have tasks more prominent in later iterations.

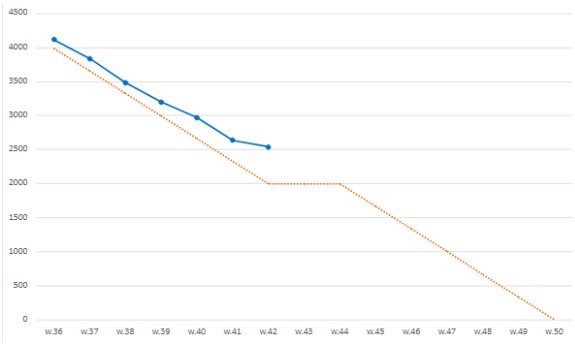

Figure 1: Burn-down chart for Comapny 3 after Iteration 1