

Risk Management Plan

Automated Railway Reservation System

Introduction

This is a risk management plan detailing the major risks of our project. We have sorted the risks based on the categories listed below. The first table in the risk management plan details the risk type, the probability of the risk occurring, the expected loss from said risk, and the total exposure of the risk. The second table identifies the largest risks based on the expected exposure, and details response strategies, an action plan, resources needed to prevent that risk, and who is responsible. This plan is meant to help prevent risk and limit exposure wherever possible.

Risk Categories

1. Mission and goals
2. Organizational Management
3. Customer
4. Project Management
5. Development Process
6. Budget/Cost
7. Schedule
8. Project content
9. Performance
10. Development Environment
11. Staff
12. Maintenance
13. *External Politics

Additional Risk Category: External Politics

We have identified a political incidence as a possible risk and have created a risk category for external politics. Chinese authorities have detained staff-members of international companies in the past. Just this year, authorities raided a number of companies, detaining at least five Chinese citizens who were employees of an American company; it is unknown if they were released. The company is no longer allowed to operate in China. According to Reuters, this raid was "what turned out to be the beginning of a sweeping crackdown on consultancy and due diligence firms".¹ This is an important consideration for consulting firms like ours. China recently expanded its espionage laws to encompass all "documents, data, materials, and items related to national security and interests."² China's train system is a matter of national security; we must prepare for increased scrutiny, surveillance, and interference.

¹ <https://www.reuters.com/article/china-security-groupm-idUSL1N3BQ2G4>

² <https://www.aljazeera.com/economy/2023/5/10/chinas-foreign-companies-on-edge-after-national-security-raids>

Risk Identification Table

The table below shows the risks identified. Risks were prioritized according to their exposure since risk exposure is an easily comparable quantitative metric associated with each risk.

#	Risk Name	Risk Description	Risk Category	Probability	Loss	Exposure
1	Losing project to competition	A competitor produces a better plan for the railways, and you lose customer buy in.	Customer	0.2	\$500,000	\$100,000
2	Language Barrier with Staff	Issues with communication cause problems completing the project.	Staff	0.8	\$80,000	\$64,000
3	Project goes over budget because of lack of historical data	Lack of historical data on a similar project could cause estimated costs for the project to be too low and the real project drives costs up.	Budget/Cost	0.6	\$100,000	\$60,000
4	Data regarding train stations and schedule may be inconsistent	Data collected and used to create the system may be inaccurate or inconsistent, leading to lots of extra work and delays.	Project content	0.4	\$150,000	\$60,000
5	Increased tech debt and poor maintenance from inexperienced developers	Because the Chinese company insists on using their staff who have less experience, there may be issues with the code maintenance.	Staff	0.5	\$100,000	\$50,000
6	Project manager lacks experience	The manager does not have adequate experience to properly lead the team, since this project is in another country and the company usually focuses on hardware projects.	Project management	0.2	\$200,000	\$40,000
7	Programmers are new to Software Engineering leading to poor QA	The developers have a good computer science background but lack software engineering skills. This can lead to poor QA	Development Process	0.3	\$100,000	\$30,000

		practices, which causes lower product quality and reliability.				
8	Lack of programmer telecommunication skills causes delays	The programmers do not have very good telecommunications skills, which could lead to delays and misalignment.	Staff	0.5	\$50,000	\$25,000
9	Project deliverables take over ninety days	The initial documents needed take longer to complete than expected, which will delay the entire project.	Schedule	0.4	\$50,000	\$20,000
10	Low buy-in due to failed prior attempt	Previous failed attempts at similar projects by the CRM may have the stakeholders wary to provide needed resources.	Customer	0.2	\$60,000	\$12,000
11	Political incident could see our company kicked out of the country or endanger staff	An incident in international relations between China and the country we are based in could lead to closed borders or detained staff.	External Politics	0.01	\$1,000,000	\$10,000
12	No maintenance after project completion	If no plans are made for maintenance of the project after completion issues with the product quality may arise.	Maintenance	0.2	\$50,000	\$10,000
13	Executives may make bad decisions based on pay	Vice President are compensated based on the projects they complete and may rush to complete as many projects as possible.	Organizational management	0.25	\$40,000	\$10,000
14	Breach of personal data from reports	A breach of data from the management reports may lead to privacy violations.	Performance	0.6	\$10,000	\$6,000
15	Security risk with programmers new to OO and SE	May leave vulnerabilities open.	Staff	0.05	\$120,000	\$6,000

16	AsiaPac CASE and OOP training might not complete before project starts	None of the personnel at the CRM have experience developing with the software packages currently available and they might not finish training before the project starts. AsiaPac is also the last region to receive CASE and OOP training.	Staff	0.1	\$50,000	\$5,000
17	Testing may cause performance issues	Plans to test the system in a live setting may cause issues.	Performance	0.05	\$100,000	\$5,000
18	GLOBALSTAR telecommunications may be delayed/unsuccessful	Our project is dependent on the success of the GLOBALSTAR telecommunications systems. If this project is delayed or fails, it will have drastic impacts on our project's viability.	Development Environment	0.02	\$200,000	\$4,000
19	The company has little experience with software projects	The company is mainly a hardware company and is just recently taking on software projects.	Mission and goals	0.1	\$30,000	\$3,000
20	Most of the project managers do not focus on software projects	Bringing four project managers, of which only two exclusively focus on software, could lead to delays and misalignment due to a lack of relevant domain experience.	Organizational management	0.1	\$30,000	\$3,000
21	Testing data may be off	Testing period data may vary drastically from actual data as volume varies significantly.	Performance	0.2	\$10,000	\$2,000
22	High volume of traffic could cause downtime	Higher volume of traffic than normally expected may lead to issues or downtime not accounted for. It is assumed that all Chinese citizens use the product at	Performance	0.01	\$50,000	\$500

		least once per year, thus the peak volume may be very high.				
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Key Risk Identification

The table below shows the top five risks that this project faces. It also includes the risk exposure, response strategy, action plan, resources, and person responsible for that risk.

Risk	Exposure	Response Strategy	Action Plan	Resources	Responsible Person
Losing project to competition	\$100,000	Accept	Use our company's experience to create a clear project plan to maximize the chances of our company being selected.	1 extra marketing manager to ensure the proposal is professional.	Project manager
Language barrier with staff	\$64,000	Mitigate	Maintain critical documents in both languages. The staff members who speak both languages will be able to verify the consistency of the information.	\$5,000 for additional time spent by translator.	Project Manager
Data regarding train stations and schedule may be inconsistent	\$60,000	Transfer	Hire a third-party company to collect train station and train schedule data.	\$40,000 for the contract with the third-party company.	Project Manager
Project goes over budget	\$60,000	Mitigate	Make sure to plan for everything in the original	Project budget to monitor all expenses and a financial officer	Project Manager

			budget, including a portion set aside for any unexpected costs that may come up	to manage the budget	
Increased tech debt and poor maintenance from inexperienced developers	\$50,000	Mitigate	Make sure code is reviewed by senior developers before merging into the code base	\$5,000 additional to senior developers for code review	Development manager

Conclusion

By identifying potential risks and developing strategies to mitigate and avoid them, we can ensure that the project is completed on time, within budget, and to the satisfaction of the stakeholders. The risk management plan outlined above provides a framework for managing risks throughout the project's lifecycle.