

## **Module 6 - Risk Matrix**

Brady Chin

Colorado State University Global

CSC501-1: Management for the Computer Science Professional

Dr. Jonathan Vanover

August 25th, 2024

**Risk Matrix**

An important factor that must always be considered is risk management. This involves identifying potential risks then determining their likelihood and impact to the project. Table 1 shows a risk matrix for the potential risks to developing a project management API using Python and Blockchain technology.

**Table 1**  
*Risk matrix to developing a project management API using Python and Blockchain technology.*

		Impact		
		Low	Medium	High
Probability	High	<b>Time Constraints</b> Mitigation: Develop a realistic timeline, prioritize tasks.	<b>Security Vulnerabilities</b> Mitigation: Conduct thorough security audits.	<b>Data Privacy and Confidentiality</b> Mitigation: Implement encryption and access controls.
	Medium	<b>Resource Availability</b> Mitigation: Plan resource allocation early.	<b>Performance and Scalability Issues</b> Mitigation: Optimize code, conduct stress testing.	<b>Regulatory and Compliance Risks</b> Mitigation: Stay updated with regulations, consider legal consultation.
	Low	<b>Project Scope Creep</b> Mitigation: Define clear project scope, implement change management process.	<b>Integration Issues</b> Mitigation: Test integration in controlled environments, maintain clear documentation.	<b>Budget Overruns</b> Mitigation: Track expenses, include contingency funds for unexpected costs.

## Reasoning

### 1. Data Privacy and Confidentiality

**Potential to occur:** Blockchain's transparent nature can conflict with data privacy requirements. This will especially be the case since sensitive data will be involved like biometrics.

**Fallout:** If sensitive data is lost or misused, this could result in customer distrust and could even lead to legal problems.

### 2. Regulator and Compliance Risks

**Potential to occur:** Since blockchain is still a new technology, regulations may not be fully developed. There will be a risk of non-compliance if the project does not keep pace with these changes.

**Fallout:** Non-compliance issues will lead to legal problems. This will result in restrictions to the API and may even cause the project to be shut down completely.

### 3. Budget Overruns

**Potential to occur:** Since this project is new technology and complex, it may result in unforeseen challenges which will result in an increase in resources and time which will increase the cost of the project.

**Fallout:** Increased cost causes financial strain and can lead to downsizing or completely eliminating features of the project.

### 4. Security Vulnerabilities

**Potential to occur:** This project will involve users to use their biometrics and other sensitive information. For this reason, this API is susceptible to cyber attacks.

**Fallout:** A security breach could lead to the loss of sensitive data and result in distrust from the users and potentially legal problems.

### 5. Performance and Scalability Issues

**Potential to occur:** It is common to have bugs in high tech projects that use new technology. It is important to ensure that the API still operates under high loads and scales efficiently.

**Fallout:** Poor performance and scalability issues can result in poor user experience. This will force redesigns that could be costly.

## **6. Integration Issues**

**Potential to occur:** As previously mentioned, blockchain is still new technology and therefore, it might not integrate well with existing python libraries.

**Fallout:** Users may experience disruptions or features that do not work as expected leading to dissatisfaction and may cause users to move to competitor products instead.

## **7. Time Constraints**

**Potential to occur:** Tight timelines can cause a rush in the development of the project. If unexpected issues arise, this can delay the timeline further.

**Fallout:** Rushed development can lead to bugs and incomplete features leading to poor user experience and potential security threats.

## **8. Resource Availability**

**Potential to occur:** With blockchain being a new technology, blockchain engineers with strong knowledge on the topic can be scarce. There also may be python tools and libraries that are in high demand or have limited availability.

**Fallout:** Having a lack of resources causes workarounds and can slow down the development of the project and decrease the quality of the finished product.

## **9. Project Scope Creep**

**Potential to occur:** Stakeholders may request additional features as the development process progresses.

**Fallout:** Change in the scope can result in an increased timeline and resources.