

Risk Management in Software Development: A Complete Guide

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Software development is just one term but it comprises so many things like projecting goals, documenting requirements, building features, **creating backend infrastructure**, deciding on the right design, and so on. When these many tasks are involved in a project, with as many different people working on it, certain risks are bound to be encountered. That is why risk management is an essential task that every software project has to pay attention to. In this blog, we have compiled everything you need to know about risk management in software development.

Table of Content

- [Importance of Risk Management in Software Development](#)
- [Types of Risks in Software Development and How to Deal With Them](#)
 1. [Risks of inaccurate estimations in software development](#)
 2. [Risk of scope variations in software development](#)
[Risk management in software development relating to end-user engagement](#)
 3. [engagement](#)

5. [Risks of poor code quality in software development](#)
6. [Risks of poor productivity in software development](#)
7. [Human resources related risks in software development](#)
8. [Inadequate risk management in software development](#)

[Common Risk Management Strategies in Software Development With Best Use](#)

- [Cases](#)
- [The Bottom Line](#)

Importance of Risk Management in Software Development



With the advancements in technology and go-to-market methods, every business is focusing more on having a unified identity which eventually makes it harder to identify the types of risks associated with it.

Though there are some practices that can be utilized to identify bottlenecks while calculating the possibility of risks and predicting their impact. Risk management is quite a complex set of activities but it is equally important for businesses to avoid or minimize the effects of risks, growing with no obstacles on the way.

The main objective behind risk management is to know and understand:

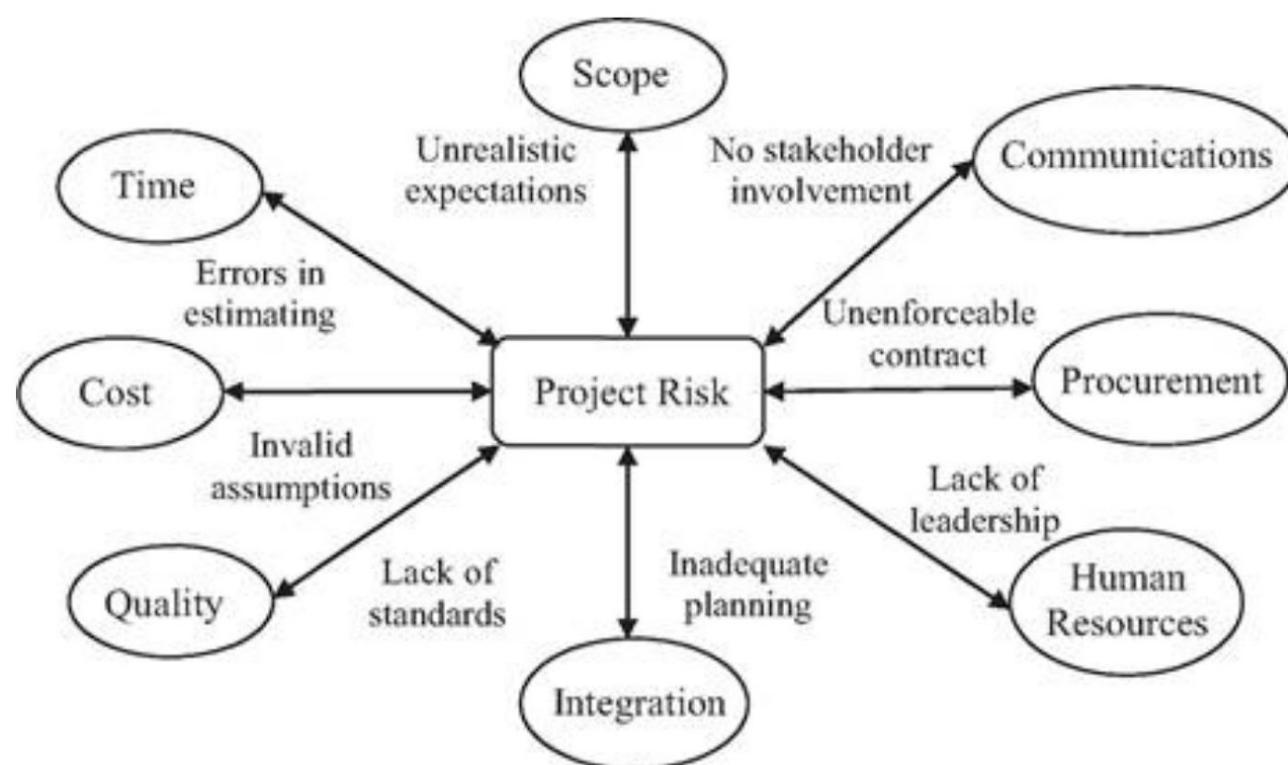
- What can possibly go wrong
- The reason behind this complication
- What would be its impact
- How to fix it

If you can handle risk management in software development properly, it will help your business to survive even when a risk materializes.

Some of the most important reasons why you should consider having risk management strategies for software development in place include:

- Saves you a lot of money by cutting expenses on emergencies that can be foreseen and avoided accordingly
- Helps you to work faster since it allows your development teams to concentrate on development, instead of wasting it on fixing unpredicted issues
- Facilitates smarter spending by not needing to entertain any additional funding in order to solve unpredicted problems
- Builds a better reputation for you by ensuring that you've got everything under control even in an emergency

Types of Risks in Software Development and How to Deal With Them



The major kinds of risks involved in software development are:

1. Risks of inaccurate estimations in software development



Estimations can rarely be avoided in software development because you experience constant pressure from customers or other stakeholders. However, they can only create risk if the estimations create unrealistic expectations.

Inaccurate estimations can be a result of your team underestimating the length of a project, milestone, or iteration. It can lead to many problems between developers and clients as it will increase project timeframes and eventually the project expenses.

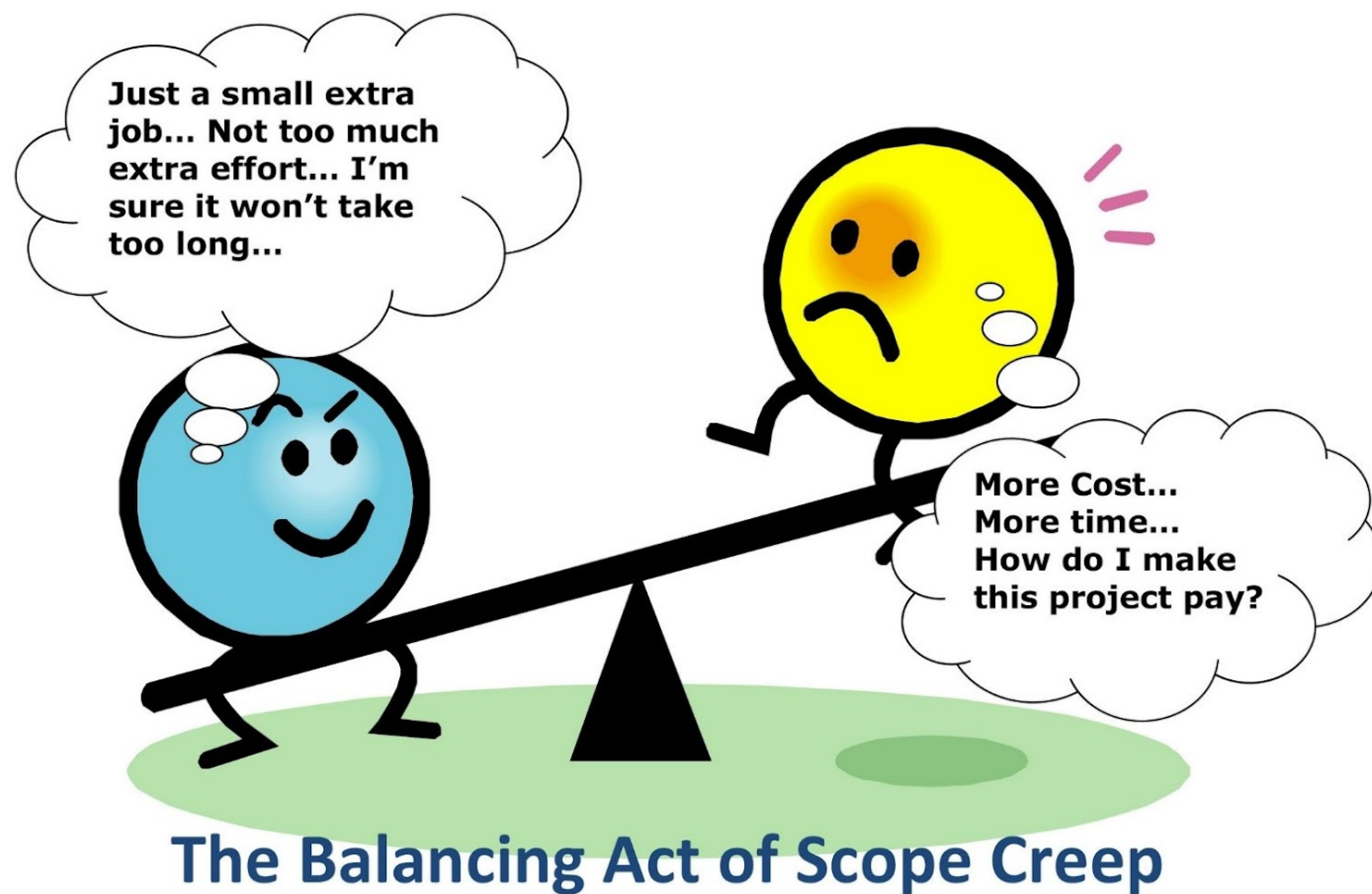
Here are some of the best risk management strategies to avoid or minimize the risk of inaccurate estimations:

- Zero down on the priority work
- Include **Tech Spikes** and an allocation factor in the estimation
- Don't forget to consider the **Cone of Uncertainty** when estimating

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2. Risk of scope variations in software development



Scope variations usually occur when there is a change in the scope of an iteration once the timeframe has been decided.

Stakeholders or product owners frequently ask to vary the scope of a project because of the constant customer feedback coming in. This scope variation can create severe risks for software projects. For instance, if a scope varies, it can significantly impact the developers' ability to stick to the original project timeline.

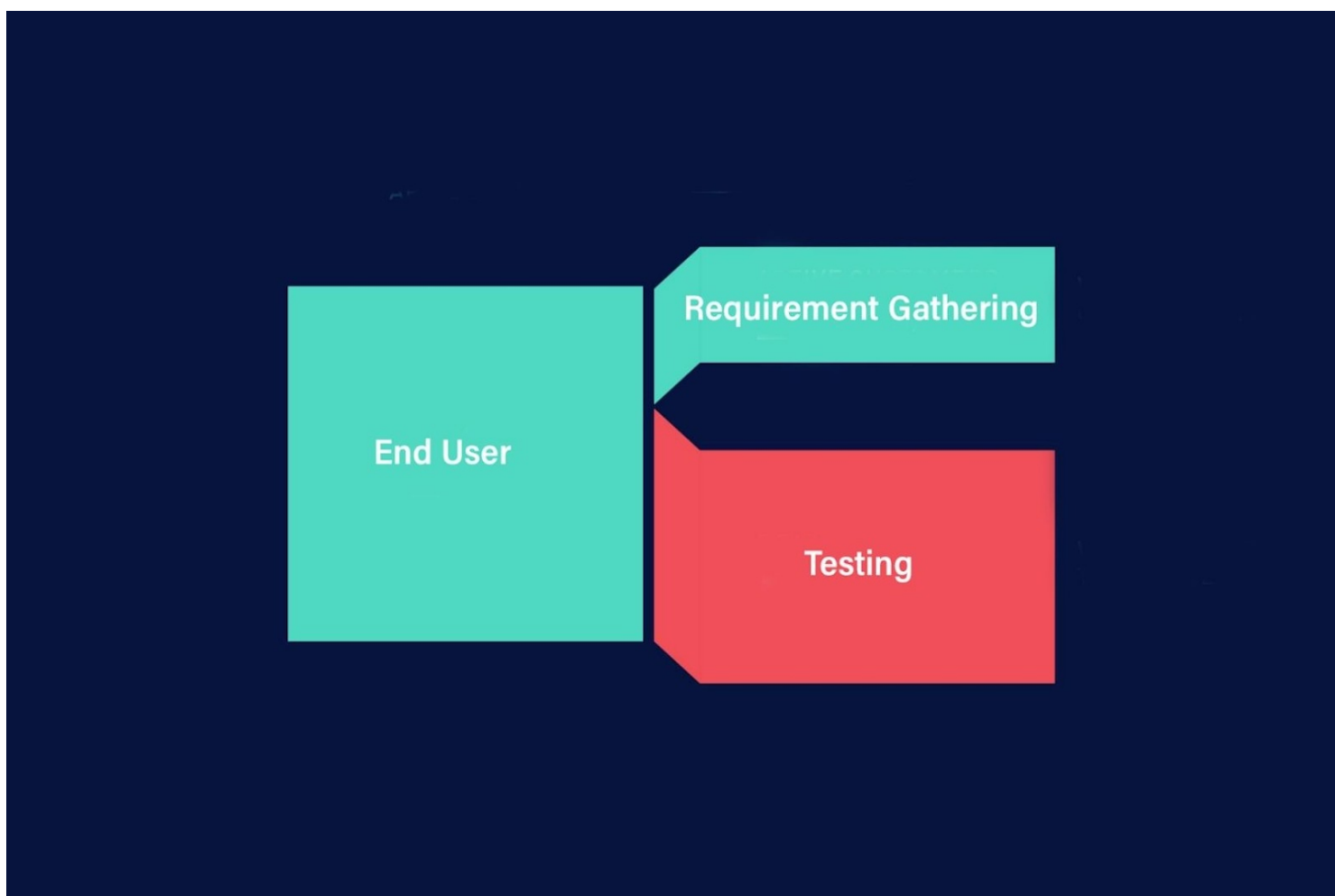
Hence, it is necessary for mitigating such risk to manage customer expectations around how scope variation can impact the original project estimations. Best ways to go about it:

- Make sure you have short, manageable iterations that allow you to reflect more frequent opportunities and vary the project scope
- Only elaborate the work at a priority level

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3. Risk management in software development relating to end-user engagement



Such risks arise when a product is released to the market but the users are resistant to change, or they have a conflict amongst them.

User engagement is important to ensure that the users of a product adopt the software, which will directly link to its success.

For a company building software for an external customer, it will bring profitability. In the case it is building the same for internal use, it can be used to improve productivity.

The best way to improve user engagement is to listen to your users. Here other possible risk mitigation strategies that are far easier to apply using agile development:

- User testing and surveys
- Focus groups
- Frequent releases
- Beta testing.

4. Risks in software development around stakeholder expectations

Other than managing stakeholder expectations as a mitigation strategy, the uptake of this particular strategy can also arise as a project risk.

A stakeholder can be anyone/any group who either impacts or will be impacted by the outcome of the software project. It can be business owners, development

This close relationship to the project outcome can make it quite challenging to manage the expectations of each of these stakeholders.

Here are some of the best ways to set expectations with stakeholders:

- Have effective communication
- Always obtain stakeholders' frequent approval and acknowledgment of the project
- Follow tested development methodologies while involving stakeholders in important meetings
- Make sure that stakeholders maintain reasonable response lines while communicating with development teams

5. Risks of poor code quality in software development



There can be numerous reasons behind the poor code quality. For instance, if projects are underestimated and developers rush to complete the iteration, they will compromise on the quality.

A bad code could be difficult to read, review, or change for other developers. The quality will be low if you rushed and released the code without testing, which eventually creates a risk of technical debt i.e., a lot of errors in the end product.

Risks of poor quality code can even decrease the agility of a software project in the long term. On the other hand, a good-quality code can help you reduce the long-term development efforts of a project by making the project easier to understand, maintain, and extend. Here is how to ensure the same:

- By implementing **User Acceptance Criteria** making stakeholders affirm that the project is up to standard.

- Having code reviews, clear coding standards and guides, and testing of all code in place.

6. Risks of poor productivity in software development



If your project group lags on planned timeframes, poor productivity most likely is the reason for it. You need to frequently measure developer productivity by using tools like burn-down charts or iteration reports. Consider the following strategies for this:

- Value people culture of your company;
- Set realistic timeframes and pace during project estimations to avoid burn-out of staff; and
- Preferably hire a Product Manager who can be directly involved and collaborate with the team.

How to Measure and Improve Productivity of Your Software Development Team

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7. Human resources related risks in software development

Sometimes, a stakeholder or development team member might have to leave the project unexpectedly. It can create a risk to the project, especially if project knowledge is not documented properly.

To reduce the impact of this risk in software development, take the following actions:

- Ensure that you have detailed and up-to-date documentation of your project scope and progress
- Start onboarding new or replacement stakeholders with a learning guide
- Have monitoring methods for the invoice schedule and team utilization

8. Inadequate risk management in software development

When the stakeholders fail to properly recognize or mitigate any project-specific risk, it will lead to inadequate risk management. Hence, inefficient risk management for a software development project is a risk in itself.

It all starts with spending time acknowledging that there are risks in the project.

Sit with your team and evaluate your own project requirements and goals critically. Identify all the different types of risks that your team can encounter.

After that, you should consider mitigation strategies from the outset throughout the software project. Many risks will arise when you're building software, and they can only be mitigated if they are identified effectively. You can try:

- Including risk in estimations
- Utilizing a **Risk Register** both on estimations and in the project requirements backlog.

Common Risk Management Strategies in Software Development With Best Use Cases

1. Risk Avoidance

A radical risk management strategy in software development wherein a business refuses to take a risk and declines to perform an activity.

- Fast to implement — all you need to do is just decline or accept the activity.
- Can leave potential revenue on the table, if not careful

Use Case: Ideal when the harm from the possible risk is much greater than the possible profit from the activity.

2. Risk Mitigation

Risk mitigation is the most common strategy for risk management in software development. It's useful for reducing the effect of negative consequences instead of avoiding them altogether.

- No need to use your resources to eliminate the risk since it allows you to work with its consequences.
- You still might have to deal with the negative consequences of the risk.
- Ideal for businesses with loyal clients, those having sensitive timing, or service providers.

Use Case: When you can't avoid the risk completely but the service should still be delivered on time i.e., emergencies.

3. Risk Transfer

Here, you pay a third party to deal with the negative consequences.

- Very simple and fast to perform
- It may cost a fortune and you'll have less control over part of your business
- Perfect match for businesses with a high load on some of their components

Use Case: When an activity should be done quickly without compromising on the quality, and you have no time to gain your own expertise or train your own professionals.

4. Risk Acceptance

Risk acceptance in software development helps you accept all the negative consequences of a risk.

- Almost no resources needed
- All the negative consequences are yours to behold
- Should be used by established businesses that value implementing new features more than supporting old ones.

Use Case: When an activity is harmless for the majority of users or when profit generated from the delivered activity for the users is higher than a possible inconvenience.



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The Bottom Line

Risk management in software development is an extensive and ongoing exercise. Otherwise, it can lead to major cost overruns. Or worse, it can leave the project completely destroyed. The basic approach to ensure the success of your software project is to identify all the potential risks, evaluate their probable impact on the project and compose strategies to minimize the impacts of these risks.

Partnering with an **experienced software development company** can help you develop a concrete threat model for your software project. With industry expertise gained by working for a variety of different projects, such companies have a better understanding of appropriate risk management strategies based on the project type and goals.

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Krunal Shah is the CTO and Co-founder at Third Rock Techno. With extensive experience gained over a decade, Krunal helps his clients build software solutions that stand out in the industry and are lighter on the pocket.

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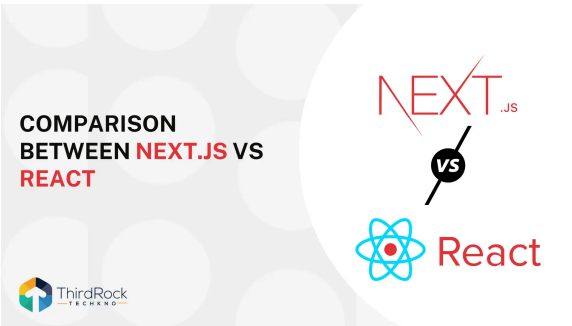


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