Software Project Management

How to deal with uncertainties in software development

Software project managers can't ever hope to eliminate uncertainty, but they can reduce it and be prepared to deal with unexpected events

Reflection

Software development is difficult for a lot of reasons:

- Complex/new technologies
- Behaviour of clients
- Tight schedules
- New Teams or team members

One particularly big reason they fail, though, is because project managers are not aware or ignore or don't know how to consider and deal with uncertainty

Recommendations

There are some recommendations for software project managers when dealing with uncertainties

Identify the sources of uncertainty in the project

Uncertainties can come from a big variety of sources
it's important to understand their origin
Risk assessment at the beginning of your project is important at this aim
Knowing where uncertainties originate can help to recognize more quickly and earlier when unexpected things occur during the project and address them promptly

Identify the sources of uncertainty in the project

There are generally four general sources of uncertainty:

- technological (mixing old and new technologies)
- the market (client needs, suppliers, partners, etc.)
- the environment (governments, team size, resources, etc.)
- socio-human (e.g., How do your team members learn and use information?)

Use the right project management method for the project

Depending on the level of uncertainty in the project goals and solutions, one project management methodology may be preferred over another

For example, if the goals and solutions are both well defined, traditional project management (waterfall) and Agile work well

If the goals are clear but the solution isn't, they recommend Agile

However, if both the goals and the solutions are very uncertain (e.g., an R&D project), Extreme project management is a good choice.

Address unexpected events as soon as possible

Everyone on the team, not just the PM, should constantly be on the lookout for the unexpected
Scrum teams should address bugs as quickly as possible
Customers should be aware of what the final solution will look like or how their requirements will be implemented
New technologies should be acknowledged as soon as possible to verify if the requirements can be implemented and correctly

Apply best practices to reduce uncertainty

Uncertainty can't be eliminated, but it can be reduced
These include things like:

- Managing client expectations
- Having good internal and external communications
- Building trust and using flexible contracts, which helps to mitigate the resistance to inevitable changes in the project

It is also important to be flexible, creative and open to experimentation and improvisation, especially if the number of uncertainties is consistent