Software Project Management

Name Cheng XuQiang number 13211113
Zhejiang Normal University
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1 Introduction

Projects may involve a single person or thousands.It may be completed in hours, several months or years.

Project Management is the discipline of planning, organizing, and managing resources to bring about the successful completion of specific project goals and objectives.

Software Project Management is a sub-discipline of project management in which software projects are planned, monitored and controlled.

Software development is a complex process involving such activities as domain analysis, requirements specification, communication with the customers and end-users, designing and producing different artifacts, adopting new paradigms and technologies, evaluating and testing software products, installing and maintaining the application at the end-user's site, providing customer support, organizing end-user's training, envisioning potential upgrades and negotiating about them with the customers, and many more.

2 History of Software Project Management

The origins of project management software are rooted in the 1950s when Dupont Chemical collaborated with mainframe computer maker Remington Rand (Univac) to devise the Critical Path Method of network scheduling (CPM). This method was tested in 1958 with the construction of a major new chemical plant. In parallel, the US Navy working together with Lockheed Aerospace devised the automated Project Evaluation Review Technique (PERT) for the Polaris Missile program that ran on the IBM mainframe. Mainframe and Mini computers dominated the project management software arena until the early 1980s when PC computers began to proliferate across business and government circles alike.【1】

3 Overview

A project is well-defined task, which is a collection of several operations done in order to achieve a goal (for example, software development and delivery). A Project can be characterized as:

- Every project may has a unique and distinct goal.
- Project is not routine activity or day-to-day operations.
- Project comes with a start time and end time.
- Project ends when its goal is achieved hence it is a temporary phase in the lifetime of an organization.
- Project needs adequate resources in terms of time,

manpower, finance, material and knowledge-bank.

4 Methods/Techniques

Software is said to be an intangible product. Software development is a kind of all new stream in world business and there's very little experience in building software products. Most software products are tailor made to fit client's requirements. The most important is that the underlying technology changes and advances so frequently and rapidly that experience of one product may not be applied to the other one. All such business and environmental constraints bring risk in software development hence it is essential to manage software projects efficiently.

The image above shows triple constraints for software projects. It is an essential part of software organization to deliver quality product, keeping the cost within client's budget constrain and deliver the project as per scheduled. There are several factors, both internal and external, which may impact this triple constrain triangle. Any of three factor can severely impact the other two.Therefore, software project management is essential to incorporate user requirements along with budget and time constraints.

4.1 Risk Management Process

There are following activities involved in risk management process:

- **Identification -** Make note of all possible risks, which may occur in the project.
- **Categorize -** Categorize known risks into high, medium and low risk intensity as per their possible impact on the project.
- **Manage -** Analyze the probability of occurrence of risks at various phases. Make plan to avoid or face risks. Attempt to minimize their side-effects.
- **Monitor -** Closely monitor the potential risks and their early symptoms. Also monitor the effects of steps taken to mitigate or avoid them.

5 Conclusion

Software project management comprises of a number of activities, which contains planning of project,

deciding scope of software product, estimation of cost in various terms, scheduling of tasks and events, and resource management.

Acknowledgments

I would like to thank my classmate and reviewers for taking time out of their valuable schedule to help make this report more concise and clearer.

References

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