

# Software Project management

## Introduction

We will first address what is software project management?

- Is software project management any different from the traditional project management?
- The difference between jobs, projects, and exploration work.
- What makes software project planning difficult?
- And, what do we mean by project scope?
- Why is it important and how does one define the project scope?

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- Software has become a very prominent part of our living, we spend huge amounts of money software; we encounter software in many places.
- Especially in India we are known as a software powerhouse, huge amount of software gets developed, large number of companies and they undertake large number of projects to develop software.
- So, it is a important topic all over world. And, especially for India where large part of the software development takes place, but then everybody says that there is a software crisis.
- But what is this crisis? Let us first get to understand the crisis.

# Symptoms Of a crisis

- software that had developed and delivered to the customer very often fail to meet the requirements of the customer,
- extremely expensive these are difficult to alter, debug and enhance and also these are delivered late to the customer.
- This is unlike hardware where you get the hardware quickly developed and given.
- So, let us see, what is this after crisis, what causes it, and how to overcome?

# Causes for software Crisis

`1. the software has large number of functionalities 100s or 1000s of functionalities or 10s of 1000s of functionalities for even simple software packages

2. Poor project management

project management is an area of concern because many projects they get developed without a proper project manager and without proper project management skills.

3. The third point is lack of adequate training in software engineering. The developers start developing with some domain knowledge, but then they ignore the software engineering issues design requirements specification, testing, change management and so on.

# Difference between software project management and management in other disciplines

- software is intangible.
- until the software is running , it is just a set of documents or some pieces of code,
- you cannot make out that how much is remaining just by looking at the documents or the code.
- Maybe huge amount of code has been taken has been written, but then the software is far from complete, because many bugs needs to be fixed it needs to be tested and so on.

- For example, in case of construction of a large building, here the project manager can estimate how much effort time it is going to take to construct the building maybe 6 months.
- At any time he can accurately tell that how much work is remaining by looking at how the building is coming up, but in software that is not the case



- The second problem is change impact. In a building you make small alterations, let us say building project. You know that, what exactly will be the impact of that and you can estimate that and make the small change that may be required.
- . But on the other hand software is extremely complex, you change something, you try to change something and you see that many other things are not working or working in a wrong way. So, the impact of a change is very easy to identify in case of other projects, but in a software project it is so, complex that you cannot estimate what will be the impact of changes?

- But, unfortunately the software is required to change rapidly.
- The change requests in software are millions time more as compared to hardware,
- when you are developing a hardware you think twice before giving a change request. Because, that will be very hard to incorporate in hardware, it has to be totally redone.
- Whereas, everybody knows that software can be changed and therefore, lot of change requests come.

- The third problem is that software projects are intellectual work.
- Compared to a building construction, where the bricks have to be laid the roof has to be constructed, boundary wall has to be constructed, painted and so on.
- All these are largely manual work and manual work is easy to estimate, you can easily find out how much a painter can paint per day or a labourer can lay the bricks per day and so on.

- Whereas, software is a intellectual work.
- It is very difficult to estimate what is the complexity of the work that somebody is doing and how much he will be able to accomplish

# Differences between software projects and other projects

- 1.. The first thing is you have to manage something, which is invisible. And, anything that is invisible is difficult to manage.
2. second thing is that changes are very frequent in software projects, but then it is also very difficult to estimate the change impact, the change impact is usually very large and it is also difficult to estimate.

- 3. The third thing is that, we have to do in software project management; we have to manage intellectual work. This is a much bigger problem than managing manual work. In manual work we can easily estimate, how much can get down on a day, what is the complexity of the problem and so on. In intellectual work we can neither estimate what is the complexity of the work and neither how much effort will be required for that

# What are projects? How is it different from tasks and explorations

The tasks are routine jobs, for example, let us say buy a movie ticket or watch a video lecture. These are tasks or jobs, these are repetition of very well defined well understood activity with very little uncertainty, watching a lecture yes you know that you have to sit there and watch can be done you have to sit there half an hour whereas, exploration is on the other end where the outcome is very uncertain

Project is in between task and exploration