Management Issues in Software Development

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Abstract: Software development is a sector that has witnessed the highest rate of project failure in the world. Our country having very poor software industry and high failure rate of software projects. Most Projects are over budgeted, over timed and get low customer satisfaction due to the poor management staff. Software industries are spending lot of money on project management training, so the success rate of software projects has not improved. Common issues which are categorize into different categories such as technical and Managerial.

This paper discus the Management issues related to Time, Finance, Manpower, and with Management itself in Software development. Technical knowledge of a Manager for managerial skills plays a better role to cure the problems in software development life cycle

Keywords: Software Project Management, Technical and Managerial Skills, Software Development, Management

1. Introduction

Software development is a very complex field that faces problems in development process [1, 2, 4, 5]. It cause highest rate of project failure in all over the world. According to the Standish Group CHAOS report of 2003[2, 4]:
- 15% software projects terminated without any result.
- 66% failed.
- The average cost blow out is 43%.

In 2004 [3, 4] CHAOS Standish group report about software projects is 74% projects are in trouble means that they do not meet cost, budget and scope constraints. Additional cost on unplanned resources and dissatisfied customers because of late delivery sink the software projects.
Software organizations focus [2, 7, 10] and spending a lot of effort and money on the training of software mangers but they don’t achieve the results. The reason is, there is no time management, no way to prepare a schedule for a project and they ignore technical skills.
Project managers focus on their previous experience and they don’t apply technical knowledge for managerial skills. Another problem is software managers neglect the informal trainings which conducted due to the crises in the organization and as well as the formal trainings are also missed by software managers. This paper highlights some issues which are common in software projects.

1.1 Soft and hard skills of project Manager

Soft skills [1, 2] described as, it is concerned with managing and working with people, for c management, management have to select such developer for the project which assist them In the development of the project rather than create problem for them. Presentation of the project is also the responsibility of the project Managers.

2. Levels of Management
In any organization there are different levels of the management; role and responsibilities are different on different levels. Especially in software development these management level their own importance.

3.1. High Level Management

Who define the business or project issues that often have significant influence on the project.

3.2. Middle Level Management

General Manager & Work Manager: Manager who must plan, motivate, organize and control the parishioners who do software work.

3.3. Low Level Management

Assistant Managers and Supervisors who deliver the technical skills that is necessary to engineering software product or application.

4. Motivation for the Research

- CHAOS - 1994 31% failure
- CHAOS - 1996 40% failure
- CHAOS - 1998 28% failure
- CHAOS - 2000 23% failure
- CHAOS - 2002 15% failure

CHAOS report [3] about the failure of the software projects in USA. Observation shows that software projects failure rate is decline in the percentage of failed projects since 1994. Developed countries are facing an advantageous situation with the use of good methodologies, tools and technologies through various researches. According to a survey report by Sonnekus and Labuschagne (2004), the failure rate of IT projects in UK was found to be 22%, which is equals to that of the CHAOS chronicle reported in 2000. A survey report in Mauritius [1] at least 50% of software projects that suffered the following problems:

- Time out 50%
- Budget overruns 30%
- Quality problems 10%

So other engineering projects achieve much higher [1] success rates. This is due to the inherent strengths. The weaknesses associated with engineering projects have been addressed better.

5. Implementation of Project Management in Software industries

Good project management is advocated and implemented in same way that other key business function in organization. Study center for business practices showed that the following abilities should improve by software organizations:

- Schedule estimating
- Customer satisfaction
- Alignment to strategic business goals.

Those Software industries which implement project management have advantages over those who do not. Observations taken from the study confirms that the project management plays a better role for all type of software industries. Customer satisfaction, schedule estimating, time cost/hour estimating, and budget to date and quality are important relations [9] with project management. Without mature project management status of the project is not monitored and measured. And failure of project is surprise at the expected completion date of project. Preparation of project review (at the end of each milestone)
and report is important part of project management in the organization. Organizations that do not allow the status report to managers [1, 2]. Show disinterest and blame that project manager when project is in trouble and the other hand strict procedure for status and review of the project is indication that project manager care about the progress of the project.

6. Common Issues in Software development

6.1. Issues with Time Management

• Determining short time
• Wastage of time by team
• Wastage of time by manager
• Wastage of time due to incident

The manager of any project always complain for short time period, sometimes it is due to the project manager that he not pays attention to time scheduling and the resources, and sometimes customer give very short time period.

Time is not proper managed, so that it is also a management issues. In software development the important problem which are face is this that mostly project manager does not know the expertise of the team member that which team member is expert in what field so that the decision regarding to the assignment of task to the team member are not correct. This is also a big problem for the software development and for the management and this will waste the time of the project. It is mostly seen that the management does not apply the past experiences to the recent project, so again such problem which were faced in those project once again faced in current projects. This issue is related to the management and much time is consumed in this practice.

6.2. Issues with Finance Management

• Short budget
• Late payment from customer
• Improper use of budget

Finance is also an important issue for management, some time the fund given for the project become short and it create problem for the management, because management is responsible for the fluent flow of the development and without enough fund it is not possible.

It is also issue for the software development organization and for the management that the customer do not make payment in time, this create problem for the management because management has to handle all finance related issues, such as salaries of the employees working of the project.

In some cases the person who is given responsibilities related to finance not properly use the budget so improper use of the budget create problem for the management.

6.3. Issues with man power

• Poor induction
• Untrained personnel
• Lack of trust among team member
• Mentally unconfident teams

The manager responsible for the induction of the personnel for the project so in the result management suffer serious problem in respect of manpower working on the project. There are lot of issues faced due to poor induction that first there will be need to trained the person for the project before assigning them duties in software development organization, second lot of time will be consumed and project will be late from its schedule, there is also an economic effect on the project due to poor induction of person for the project, some time in software development organization.
The problem faced are improper training of team member.
The person which are hired for development are not properly trained although they have enough knowledge but have not experience so after induction of such personnel management suffer such problem.
Team member of the project some time don’t trust to each other this create problem for the management because when there will be no trust among the team members of the project will not proceed in the proper way the time will be wasted.
If in software development organization a project become fail the team will be disturb mentally and will lose their confidence this is also management, because teams are not confident and with loose temperament they can do not do good work in the other project.

6.4. Issues with Management itself

- Lack of interest
- Mentally not clear about project
- Manager himself not expert

Without clear goal start the software development it is most major management issues if the requirement are not properly collected the goal will be not clear and then the software which will be developed will not need the customer need, it is management issue that they give permission to start software development.
It is also sometimes happen that management doesn’t try to understand the system which will be developed, understanding the system is also the issue for the management. It is also the issue for the management to understand the identification of the stakeholder of the system.
In software development for the important problem which are face is that mostly project manager does not know the expertise of the team member that which team member is expert in what field so that the decision regarding to the assignment of task to team member are not correct this is also the big problem for the software development and management.

7. Why Issues in SW development?

The following observations have been taken from a survey form, which was distributed among 15 software houses at Islamabad.
The important point is noted during the research are 60-70% project managers not taking the formal trainings. Formal trainings are those which are conducted and included in the overall project schedule. So they just use their experience to handle the project. And informal training which conducts by the organization due to technical problems is also not taking.
Communication and leadership are less. They cannot convince the customers. Lack of the soft skills in project managers, they cannot understand that what is going on the next. They have no capability to tackle the problems through their conversation.
Only about 30-35% of the project managers certified in computer science. Maximum project managers work with there previous experience in business field and they cannot deal with the problems and conflicts in software development process. The result is going to be the failure of the software projects.
Important point to note here is technical skill of the manager is not important. But manager having technical knowledge is very important for managerial skills. Experience level of 70-75% software project managers managing software projects in Pakistan has very low experience level i.e. less than 4 years of Experience. They take the start of the job from being a manager because these persons are owner of the organization or having managerial skills. So due to this
reason they don’t have a technical knowledge to handle the problems and project may be in serious trouble. Project Management is not done as a full time job in Pakistan. Project managers do other non technical and technical jobs side by side. Most of the project, Software Managers has the responsibilities of teaching in different universities. If a person who has a technical knowledge so he is the weakness of the organization. This is the hero of the organization. Because whole team of the relevant project in his under control. He/She may be developer. So he/she will leave the job due to some circumstances, project will sink.

The above mentioned problems are common in the software development life cycle. Better management staff can tackle with these problems.

8. Responsibilities of the management

- Responsible of the project
- Responsible of fluent flow of project
- Proper training and guide of its team members
- Assign worker to the team’s member according to their expertise
- Responsible of time management

In all organization including software development organization, management is the most responsible unit and all levels of manager must aware about their responsibilities that what are their duties and they have to perform their duties according to their skills. In software development if even one person not fulfills his responsibilities entire project will be flop and the result will be effected.

So all above mentioned point are management responsibilities and management put all such step which assist software development rather than create problems.

9. Proposed Solution of Management Issues

- Finance manager control on finance issues
- Proper training of all level managers
- Induction on merit of all technical and non technical staff
- Proper time scheduling

These issues affect the software development process and impact on the efficiency of the management, so that the entire result cannot be achieved. To award such situation necessary steps must be taken. For this purpose there are some proposed solutions if these solutions are considered many issues can be resolved in better way.

First of all in software development issues are related to finance, if in development process fund are properly utilized this problem can be overcome. The responsibilities related to finance must be ended by the finance manager, if unrelated person will interference in the work of finance manager the problem will be faced. Same in the case of administration all problems must be tackled by personnel manager or admin office.

In mostly organization staff suffer with admin problem a well experienced person related to it field can solve their problem in better way. In software development administration have their own importance and lot of responsibilities. All level of manager must be proper trained and must be aware about their duties.

So this purpose there should be proper arrangement of their training with the passage of time. Same developers working on the project must also be given the equal chance of training in their respective field. In software development organization management issues rises after the induction of the personnel. If their induction is made on the merit, suitable person is selected for
the desired post then these management issues can be eliminate. In software development there should be also concept of time keeping so by this way progress on the project can be judged in better way and a person working on the project will try to complete their work in the required time. Another thing which project manager must keep in mind that when he assigns any task to the developer time limit must also is given to that developer. These are such proposed solutions which can be implemented very easily and better result oriented.

10. Conclusion

Important point to software managers is that, that they should have soft skills and technical knowledge. So they should also manage the different resources like people, hardware and software. Management plays a key role in software development organization, and role of management directly affect the software development. In software development organization fluent flow of process can be only achieved, if management issues are properly addressed. For this purpose all levels of management must aware of their responsibilities.

11. References


