

How to Resolve Management Issues in Software Development

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Abstract

Software development is an area that has observed the maximum rate of project failure in the world. Our country has very poor software production and high failure rate of software development. The majority of projects are over budgeted, over timed and get low client pleasure and satisfaction due to the unfortunate and poor management personnel. Software productions are spending lot of capital on project management training, therefore the success rate of software development has not enhanced. Ordinary issues which are classify into different classes such as scientific and managerial.

The troubles appears in software growth are, not meet the client necessities, over budgeted and low customer satisfaction due to the poor management persons. This information is taken from local software industry. Report illustrates that informal meetings have huge impact on software projects because these meetings performed due to the technical troubles and software meets its requirements. This paper discuss the Management issues related to time, finances, manpower, and with management itself in Software development. Formal and informal meetings are very important to reduce the management problems in software development.

Keywords: *Technological skills, Administrative skills, Software development.*

1. Introduction

Software growth is an extremely difficult field that faces troubles in development practice [1, 2, 4, 5]. It cause maximum rate of project failure in all over the world.

According to the Standish Group CHAOS statement of 2003 [2, 4]:

- 15% software developments ended without any outcome.
- 66% unsuccessful.
- The average expenditure blow out is 43%.

In 2004 [3, 4] CHAOS Standish group's statement about software development is 74% projects are in difficulty, means that they do not meet cost, financial statement and scope limitations. Extra expenditure on unexpected resources and unhappy customers because of late delivery

sink the software works.

Software societies focus [2, 7, 10] and spending a lot of exertion and capital on the training of software management staff but they can not attain the results. The cause is, there is no time management, no technique to organize a timetable for a development projects and they neglect technical or industrial skills.

Project managers focus on their earlier knowledge and they don't apply scientific knowledge for managerial skills. One more difficulty is, software managers ignore the informal trainings which performed due to the disasters in organization and as well as the formal trainings are also ignored by software managers. This paper highlights various issues which are well-known in software projects.

2. Soft and Hard skills of a project manager

Soft skills [2, 3] concerned with managing and functioning with people for consumer pleasure, project conveyed on time and according to timetable.

These soft skills are art skills including communication, teambuilding and flexibility skills.

Hard skills [1, 2] are associated with science skills which are comparing processes, tools and expertise is the main focus of many project management methodologies.

2.1 Technical and non-technical skills of a project manager

Project Manager [2, 3] those are scientific environment in software field these people come through effort and their communication proficiency. They were organization administrator, programmer or system analyst. However non technical development managers are also running software projects effectively.

Western Carolina University was conducted a study of 168 development managers in which 96% of the respondents thought they manage technical projects, 49% said they be

deficient in technical education or training in the types of projects they supervise. To deliver the project effectively general skills are so vital. General skills concerned with stakeholder hopes, managing costs, timelines and talk with people [2].

3. Role of the project management in software development

Management is the most dependable element in any business organization. The smooth flow of software development process in software development organization is responsible management and put all the hard work for success of a project. Software management is the finest way to improve the business. It has a direct effect on the business in the case of success or failure.

Management is vital [8] due to a few responsibilities in the software development practice.

- Project Monitoring.
- Planning of a project.
- Project cost Estimation
- Project Scheduling.
- Personnel hiring.
- Personnel Evaluation.
- Reporting.
- Presenting the Project.

Project management has a vital role in software growth, Estimation of capital, price and timetable of doing special behavior of the project [6, 8].

All other activities of the software project management are associated with planning chapter, planning provides information concerning with the expenditure of the development process. The over all expenditure of the software can be intended on the basis of specified information and according to the planning the project supervision. Planning objective can be attained through a procedure of information gathering, after receiving information it is effortless to project management for opinion about project can be determined in the planning stage of the Project.

Project manager is the responsible of whole project consequently it is significant role of the project management, that to watch the whole project and with the passageway of time, review the improvement of the development that in what way project is proceeding, whichever project is running in accurate way or not.

Choice member of staff for the entire project is the responsibility of project management, administration have to choose such developer for the project which support them in development of the project rather then generate troubles for them. Presentation of the project is also the duty of the project manager.

4. Research Motivation

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

CHAOS statement [3] about the malfunction of the software projects in United States. Study explains that software development collapse rate is turn down in the proportion of unsuccessful projects since 1994.

Developed nations are facing a beneficial condition with the use of excellent techniques, technologies and tools through different investigations.

According to a analysis details by Sonnekus and Labuschagne the collapse rate of IT projects in United Kingdom was found to be 22%, which is equals to that of the CHAOS record statement in 2000. A review report in Mauritius [1] at least 50% of software projects that experienced the subsequent troubles

- Time out 50%
- Financial plan overruns 30%
- Excellence problems 10%

Therefore other business projects attain much superior [1] achievement rates. This is due to the natural powers. The limitations associated with business projects have been addressed improved.

5. Project Management in Software Industries

Good quality project management is sponsored and applied in similar approach that other key business function in organization. Study center for business practices explained that the following capabilities must improve by software organizations:

- Schedule estimation
- Customer pleasure
- Alignment to considered business targets.

Those software organizations which applied project management have reward over those who do not.

Clarifications taken from the facts verify that the project management acting a better responsibility for all kind of software productions. Client happiness, timetable estimation, cost/hour estimation, financial plan and worth are significant relationships [9] with project management. Without established project management condition of the project is not examined and measured. Failure of project is shock at the predictable end date of project. Training of project analysis (at the end of each objective) and report is vital part of project management in the organization.

Organizations that do not permit the status report to managers [1, 2]. Prove apathy and blame on the project manager when project is in difficulty. Review of the

project is sign that project manager worry about the improvement of the project.

6. General Issue in Software development

6.1 Technical and non-technical skills of a project manager

- 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.

6.2 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. Formal and Informal meetings in Software Development

Formal meetings are those meetings which are included in overall project schedule and informal meetings are those meetings which are conducted due to some technical problem in the organization and [2, 11, 12, 13, 14] not included in the schedule.

Understand the formal meeting method is important than informal meeting, because the rules of the meeting, because it require more formality. In formal meetings only one person speak at a time.

During informal meetings you should [11] follow the following rules when you are a chair person:

- Make sure that you are familiar with the rules when you are talking and explain what you are doing.
- Read the amendments before the vote is taken.
- Sum up what you have decided at the end of the meeting.
- If time is over you can ask for more time when everyone is agree.

In these meetings the awareness [11] about the meeting is very important and should know the following:-

- Time of the meeting.
- Place where meeting will held.
- Purpose of the meeting.
- Who attend the meeting?
- What was decided?

8. Why Issues SW Development

The following observations have been taken from a survey form, which was distributed among 50 software houses.

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. Table 1 show the results which are taken from the local software houses.

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.

Table 1: Shows percentage of success and failure of software projects (meet or not meet the customer requirements)

Meeting type conducted	Meet the customer requirements	Not meet the customer requirements
Conducted formal meetings. And not conducted informal meetings.	50%	50%
Conducted informal meetings and not conducted formal meetings.	60%	40%
Conducted both formal and informal meetings	80%	20%

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.

9. 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.

10. 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 be given to that developer.

These are such proposed solutions which can be implemented very easily and better result oriented.

11. 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.

Results show that Informal Trainings are very important to fulfill the customer requirements. 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.

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