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Ground Causes of Poor Requirement Elicitation

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Abstract: Requirement gathering and elicitation are undoubtedly core and essential part of any IT project. This paper generally focuses on how poor requirement elicitation may affect not only the whole project but the people related to this project as well. Any field where human being is involved is likely being mistaken in any form and anywhere of the field. Hence, the paper is generated to discuss some of the core issues related to poor requirement elicitation causes. There is thousands of small, medium or high level of causes of poor requirement elicitation in the world of software engineering, which is definitely not possible to discuss here in a single section, hence the major and very general points are taken.

Keywords: Software requirement engineering, requirement elicitation, story board, software development life cycle, project management, project failure

I. INTRODUCTION

Project management itself is a big role when it comes for any software project. If not proper initialized, proper worked and proper executed any project may face array of complications. Some complications may be dependent on each other where some may not, especially at the time when requirement elicitation is concerned. It is always difficult to develop accurate requirements that remain consistent in large and complex system. The study shows that majority of the errors in the software functionality are directly linked to the mistake done at the time of requirement gathering and elicitation phases [2].

II. REQUIREMENT ELICITATION

No matter how methodology of project development changes time to time, it will be on point at certain level as far as compatibility is concerned. RE process is iterative that targets developing quality product [4]. Hence, proportion of change in requirement is directly connected with complete project making methodology. If the project itself is going on smooth way, some or other way it may get handled and finished by working on a meaningful manner. As per result, the more accurate requirement elicitation is done, the more accurate working environment is developed. Since ages, SRS (Software Requirement Specification) document is made. SRS capture system behavior as opposed to non- functional requirements specification which defines attributes as not behavior [5].

III. WHY REQUIREMENT ELICITATION IS BLAMED AS MAJOR CAUSE OF PROJECT FAILURE?

Project management itself is a vast field to research. And then it has many other branches expanded in various directions which too can be specified in different enlarged images. It is frequently the case that changes of requirements have a particularly momentous impact on the consistency of specification. In order to regain consistency, requirements are removed from the specification which often leads to incompleteness [6]. Requirement elicitation is the initial phase. If it doesn't work on a straight or decided line; it may result in poor quality of final product. Hence, it is compulsory to make it in a right way with maximum concentration.

Why project fails?

When analyzing the causes of success or failure, the defendants to the survey cited the top three success factors as:

- A. User interference;
- B. Top management backing;
- C. A document stating perfect requirements. The top three factors leading to failure were:
- D. Lack of user involvement;
- E. Unattended requirements and it's specification documentation;
- F. Changing requirements.

Many a times organizations make commitments to major projects but cannot always deliver what was expected and, even fail to determine how much value they are getting from their investments.

Listed below are few of the common causes of project failures given.

- 1) *Poorly defined project scope:* For documents which describes whole project and its making needs clear statements regarding scope and objective. It decides the outline of project and its future. I.E exactly for what purpose the project is being developed

and what is the future of this project, the limitation, particular area, where it will be used in best way and its future other goals. If that doesn't state proper set of necessary information of project's limitation/ boundary then it may get developed without knowing where to stop. For example, there's a product being developed for an engineering company. In this case, end- user wants to "expose strictly company's product and company's working area." It is hypothetical sentence whose output may be:

Focus maximum on company's product and company's working area.

Put as many pictures of company's product and company's working area as one can

Create a website to show just company's product and company's working area and nothing else.

If, it is not mentioned that company wants us to put data of its product and working area only, then developers may end up even providing list of and contact of engineering working at company, software tools they use and sometimes the confidential data as well because they are not told not to do so. Hence, properly designed scope is one of the unavoidable tasks of requirement elicitation.

2) *Faulty risk administration*: When initial phase of project begins i.e. deciding number of team members, team members, time line chart, scope, objectives, other part of documentation etc., risk factor and risk administration plays an important role. The risk generally focuses on the issues like what can go wrong in project, what will be the damage, how to tackle the damage and if possible how to provide solution for that? Main risks involves 3P (Process, Project and Product) and User.

Risk in project may be identifiable or non-identifiable. We can also categorize risk as project risk, technical risk and business risk [7].

The hierarchy is like



Fig 1 Risk management hierarchy

When risk is pre-identified, it may get avoided easily by drawing certain back-up plan ready if risk occurs. But if is unidentified, it may harm the project. At that time "Risk migration plans" work out in best possible way. Adminstrating risk or provide sufficient focus on risk management is also a sharp strategy to follow along with project development.

3) *Unable to trace hypothesis*: Risk management plan is heavily dependent upon assumption. If team gets fail to properly analyze them, it may affect project's outcome. For any projects, assumption and constrains are as important as risk, although they are not given much importance like risk management or requirements. But a proper paper work can definitely protect developers from many hidden issues. A hypothesis plays a major role in risk management plan. Which generally the answer of question "What... If". So, a project manager needs to gather and analyze as many assumptions as possible. That helps to create smooth risk management plan.

Just like assumption, constrain also play a major role in not-so-smooth-project working. Basic business constrains may be time, scope, milestone, budget, resource etc. whereas technical constrains are generally forced from end user on the team members.

Each statement in SRS (Software Requirement Specification) document must be very clear to its meaning. The word "JUST" plays a major role while working. For example:

JUST 30 textboxes must be in a single webpage. 30 textboxes must be in JUST single page. Here, first statement indicates on a single webpage, 30 textboxes should be there. Neither more nor less (unidentified). Whereas, second statement focuses on just a web page. Like there should not be other webpage having 30 textboxes.

4) *Selection of inefficient leaders:* As the three points discussed already, one can easily come to know that project manager has bunch of activity to perform before, during and after project completion. He has to walk the path with his team and not alone. Credit of good project cannot be given to only him and failure of project cannot be thrown on team rather than project manager. Hence, project manager takes 100% responsibility for a given project. And it really needs lots of hard work, smart work and time consumption. If possible, team leader/ project manager must be certified in the field of "Project management". He/she should be ready to carry the work on shoulder with responsibility. A good project manager must be a great communicator, he should know to handle team and project both softly and when time needed harshly too. Good project managers must be skillful and must be having sound knowledge in technical area as well. If not, he/she should be enthusiastic to learn when time needs. If all these characteristics are missing in a project leader, it's time to wave "good-bye" to him.

5) *Not following any plan or strategy:* Time line is a perfect example of making and following a schedule for whole project. It doesn't matter if it follows AGILE or any other model for development.

Project scheduling is a system to convey what assignment needs to get completed and which resources will be allocated to finish the task within fixed time line. Making of proper plan for project management helps out in many ways. Some of them are:

Monitoring and controlling project activities is done from ground basis

Helps out to decide whom to allocate particular resource

One can easily track the progress of project.

Some inputs needed for scheduling are:

Calendars: Google has tremendous facility to manage our dates and tasks time and date wise. It will help to organize not only project related things, but personal too.

Project scope description: Team is able to decide beginning and ending dates, risk factors, assumption and barrier issues. There are number of planning/scheduling tools available in market. Team may use it or develop their own tool to follow.

6) *Lack of detailed documentation:* When it comes about the documentation part, it is a habit and discipline, which doesn't need extra time or practice. One can face many embarrassing situations due to poor documentation part of any project. There are various forms of documentation:

General: IT Plan, IT strategy, budgets, proposals, MOM, periodic reports to management etc.

Business oriented: request for proposal, recording of meetings.

Project related Software Requirement Specification (SRS), Software design and functional specification, change management, risk planning documents, Notifications sent to end-users, other related e-mails.

Hardware related: IT assets, Network diagram, Policies.

7) *Failure to keep track of requirement:* As SRS is the common, initial and most important part to gather requirements from end-users, it plays a vital role in requirement management, because requirements are referenced from SRS only. Some of the familiar wrong moves include inserting extra information before time of process and using more traceability than needed. Even large documents are also needed to cut off. No stakeholder finds time to fill hundreds of pages to answer detail asked. Neither team members have time to fill a form containing 40-50 pages for suggestions or feedback. Management of requirement is such a complex task but doing it in a proper will definitely make it bit easier. Team needs a proper functional working on every stage. It is advisable to take help of traceability matrix at every phase to track different aspects related to requirement.

8) *Failure to track growth in project:* While making timeline chart, it may happen afterwards, team is not able to follow the time line chart even it has pre-defined line for delayed tasks. Some time it may happen due to a key- employee's sudden exit from project or from company may affect other employees as they are working on other projects too. In that case, they have to very well be aware of the current phase of project, previous tasks done and future implementation strategy. All these issues are generally discussed in meeting or noted down. So, new team members can be familiar with task as soon as possible. In that case, hike in progress of project becomes bit low but manageable.

All this is possible only because of noted details of ongoing project.

9) *Improper timeline generation and budget:* It is essential to determine costing about whole project starting from initial phase to deployment and even after service prominence. A large number of the problems today's managers are facing, such as runaway costs, low-quality deliverables, and poorly motivated teams, can be traced directly to the use of inappropriate budgeting and management techniques on project efforts [8].

- a) There should be a pattern to follow while deciding a budget.
- b) Understanding client's need for and from project
- c) Identification of task to meet client's need.
- d) Deciding team members, resources and risk for project.
- e) Try to overcome any issue which could interrupt project work once it has initialized.
- f) Calculate and publish project time, cost and target.

Week to week time line chart budgeting is considerable for high scale of projects. Based on budget preparation is an important plan.

10) *Cultural differences in global projects:* When someone discuss about project developed for people in other nation, cultural difference be seen somehow anywhere anytime. Project management techniques and training, developed primarily in individualist countries, are based on cultural assumptions that may not hold in collectivist cultures. Project management skills include communications and managing performance. But obviously while managing the team member all across globe, when the poor performance or some negative attitude is discussed in front of a particular team member may lead wrong impression as insult on him. Such societies have more subtle, indirect ways of communicating feedback, such as through the withdrawal of a normal favor or verbally via a mutually trusted intermediary [10]. To achieve project goals and avoid potential risks, project managers should be open to accept cultural difference and must motivate team for same. Project management can succeed in a cross-cultural environment through effective leadership, cross-cultural communication, mutual respect, and reconciliation. Without them, it is destined to fail [10].

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