MANAGING IT PROJECTS IN A CHALLENGING ENVIRONMENT

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1. MANAGING IT PROJECTS IN A CHALLENGING ENVIRONMENT

1.1. ABSTRACT

Now-a-days project managers have become crisis managers. Projects which begin with a happy kick-off meeting do not usually end with a good feeling. Increasing competition, high costs, low customer budgets, downtrend of economy, increasing demands of customers have all thrown up a very challenging environment to the organizations. Managing the profit margin, customer's satisfaction and repeat business have become the key focus for all the IT organizations. In the current scenario, any small mistake on the part of the project managers would be very expensive to the organization. Often, we find that the projects despite the efforts of the project manager, projects get into the alarming red band in the performance chart. The result of this would be either crisis management wherein the organization spends abnormal additional money to set things right or lose business to the competitor.

This white paper is intended to bring out the various issues that the project managers face and the factors contributing to the failure of the project. It would also provide some tips on how to manage the projects to meet the customer's and organization's expectations.

Let us now discuss the various issues involved in project management and also the remedies to such problems.

1.2. ISSUES DURING PROJECT START

During the start of the project, effort estimation and planning are done. Required resources are procured, the roles and responsibilities are briefed to the team and the project is kicked off. During this phase, some errors can creep into the project, that have the potential to blow up during execution.

1.2.1. Errors in effort estimation:

A project well begun is half done. Most of the projects commit mistakes during the initial estimation, which get magnified multiple times and manifest at the end of the project. There is definitely an uncertainty involved in calculating the productivity of the team, which is difficult to predict. However, there are some tangible efforts that get missed out in the initial estimation like quality effort, adequate project management effort, risk coverage etc.

While risk identification is done at the project initiation, risk coverage is not taken into account during the estimation. Little do they spend on assessing the high probable risks or invest in covering up those risks. Risks need to be assessed for the probability of occurrence and the impact of the occurrence. Risks can be classified as

- High probability and high impact
- High probability and low impact
- Low probability and high impact
- Low probability and low impact

The estimators must cover risks having high probability and high impact. The risk coverage can be taken as high as 100% for such risks. For high probability and low impact risks, one may cover the risk partially depending upon the impact of the risk. For risks having low probability and high impact also, one may cover the risk partially depending upon the probability of occurrence of the risk. For low probability and low impact risks, one need not give much importance to cover the risk.

For example, if a tender from the customer has got a penalty clause associated with the timeliness of the delivery, then the project manager should assess the probability of meeting the deadlines and the extent of damages that has to be borne in case of not meeting the deadlines. Depending upon this categorization, one needs to cover the risk involved.

One must always remember that quality does not come free! The effort in quality that one wants to invest depends upon the business gains that one wants to achieve. For example, one can keep on testing till one finds no known problem. But the fact is

that still the product is not defect free. The defects might surface at some later point in time. Investing effort in testing beyond a certain point might not fetch a proportionate improvement in the quality of the product. Hence one needs to determine the quality of the product that one wants to achieve at the end of the project and add the effort accordingly.

The project management effort in a project is usually calculated as follows:

- As a percentage of the development effort
- The number of units of persons doing project management activities through out the elapse time of the project. For example, one project manager full time for the entire duration of the project + two team leaders involved partially in the management activities

While these methods can be used as a thumb rule, in order to achieve better estimates and improve the management activities, the effort estimation needs to be done based on the nature of the project.

Some studies have indicated that expert judgment would provide more accurate estimations in case of highly predictable and short-term projects than the models. In case of long term and unpredictable projects, usage of models would be more appropriate [5].

In summary, the following are some of the points to be kept in mind to minimize the errors in initial effort estimation:

- Care to be taken to ensure all tangible estimation factors are considered
- Risk coverage for all high risks
- Cost of quality
- Project management effort based on the nature of the project
- Expert judgment to be used appropriately

1.2.2. Inadequate risks management:

Project managers tend to feel comfortable with the routine activities like estimation, scheduling, monitoring and tracking etc and do not think of anything that is not current. The low impact and low probability risks are usually identified quickly while the high impact risks are overlooked. Further, most of the risk identification done usually are inadequate and do not get assessed regularly.

The result is that these risks get materialized during the course of the project and the project manager lands up in fire fighting. Risks management, I would say, is more important than the regular routine project management. While project monitoring and tracking activities are repetitive in nature, risk management and decision-making calls for thinking out-of-box based on the experience. Project effort estimation, planning, scheduling and executing could be done methodically based on matured processes. However, identifying the risks, taking actions to minimize the occurrence of the risk (mitigation actions) and taking actions to minimize the impact of the risk occurred (contingency actions) seeks in-depth knowledge and vision. Project managers should hence concentrate more on such risk management activities viz., identifying the risks well ahead of time, finding the mitigation actions and contingency actions, assessing the risks and resolving the issues regularly. The routine activities can be delegated to anybody in the team.

The risk management activity should start at the project start itself and should continuously be done through out the project life cycle.

1.2.3. Increase in expenditure and low returns

The success or failure of the project mostly gets determined at the time of bagging the project itself. A project with low payback, high requirements uncertainty would definitely land up in trouble down the line. In the anxiety to win the bid, the marketing personnel make all compromises that might not be possible to fulfill by the execution team at a later date. One needs to be realistic and examine the payback from the project. It has been observed that be it a project or an IT strategic plan, most companies think only on the investment part of the plan and give no due importance to the returns expected from the investment. As a result, once all the

expenditures are incurred and there are no signs of returns for the same, the project lands up in trouble. For example, there was a project undertaken by Tata Infotech. The project involved migration of users from the existing system to the new system, execute billing cycles and come up with ledgers. The project requirements were much more than what it was priced for. The company spent lot of effort to complete the project as per the customer's expectations, but did not receive proportionate returns. There was no repeat business to recover the expenses of the first project.

Hence in order to avoid the struggle at a later stage, one needs to do a thorough cost benefit analysis at the beginning of the project itself.

1.3. ISSUES DURING PROJECT EXECUTION

During project execution, the project manager faces several challenges like change in the team members, change in the requirements from the customer, changes in the productivity levels etc., During this phase if the project is not adequately managed, then it can go out of control. Some important root causes found for the management lapses during project execution are given below.

1.3.1. Copying successful project models:

Most project managers tend to take the project plan of similar projects that have been successful, make changes accordingly and execute the project. While it would be useful to adopt the project plan initially, it will not guarantee the success of the project. There are many other factors that are unique for each project. Careful consideration of all the factors is therefore necessary. One can imbibe the experience from the past projects, but has to plan afresh for the new projects. Planning from the scratch will also give better insight into the project and new ideas can be adopted. For example, there would be a project that has utilized all the resources from within the organization and has got completed successfully. However for a new project, by hiring resources from outside the organization, the project can become more successful. Thus the same model might not be effective for similar projects.

1.3.2. No improvement:

Most project activities become so repetitive that the organization develops standards and processes to have uniformity and predictability of results. Also, as part of the business initiatives, various certifications are obtained by adopting various process models. The certifications and models most often enforce process compliance. Mere process compliance will not ensure improvement in the project. Process compliance is ritualistic. Ritualistic adherence will not bring in significant cost reduction, as the mind is not applied.

SEI CMM level 5 attempts at creating an accountability of results obtained, by focusing on the improvement and defect prevention. However, this will not result in the success of the project if done superficially. Most project managers tend to look at 'organic' improvement as a result of process adherence. The result of the activities taken up in this direction would be trivial improvement in some business areas. This organic development does not usually bring major success to the project or the organization, as it is mostly not focused towards the business goals. A planned goal and inorganic improvement exercise is mandatory to achieve big success. Changes in the environment and the impact on the project should be carefully evaluated. Only then the project can be successful.

1.3.3. Failure of change control mechanism

A good project management practice is to write the configuration management plan in addition to the project management plan. In the configuration management plan, the project manager specifies the mechanism involved in adopting the changes to the scope of the project. The changes to the scope of the project can be in terms of change / additional requirements from the customer, change in the schedule, change in the payment terms, change in the availability of resources, change in the methodology etc. With a tight monitoring and tracking mechanism adopted consistently through out the project, one can manage the change control. Most often, if there is a heavy inflow of the changes to the requirements from the customer, it becomes unmanageable. Further, the customer might even demand for accepting the change request as non-billable effort. Such situations lead the project out of control of the project manager. In order to handle such situations, one must

draw clear rules and mode for accepting the change requests from the customer. Setting up the customer expectations, educating and negotiating with the customer would help to some extent. In the routine process, the change control mechanism should also be strictly adhered to. Any lapse in this would subsequently pave way for repetitive lapses. For each of the change requests, include the time taken for analysis and the effort estimation in the total effort. Accepting a change request as a non-billable effort should be tracked separately so that the senior management can decide on how much to give concession to the customer.

1.3.4. How much is good quality?

Deciding on when a product is ready for delivery to the customer is very critical to business success. If the product is not tested enough and is released to the customer, it would lead to customer dissatisfaction. If the product is tested repeatedly for perfection, then the cost would become high. In addition, the timeliness will also get affected. In most of the projects, the timeliness is greatly emphasized and hence the quality of the product gets overlooked.

During product development, many tests are run to determine if the product performs as expected. Big problems are addressed immediately, however, they are usually difficult to solve and take long time. Because the big problems take so much attention, numerous smaller problems fail to get addressed. When the big problems are finally solved, the natural tendency is to relax, declare victory and ship the product. Because of the engineering effort, the customers never see the big problems. They see the multitude of little problems that went unaddressed, and those little problems can result in significant dissatisfaction and warranty costs.

To help prevent product shipment decisions from being based solely on schedule and budget or how hard engineers have been working, a quality measure is required. One such measure is the Quality Index [4]. Using the quality index, one can capture information on all the problems and monitor till they are all resolved. The Quality Index uses four states:

1. Track all the problems
2. Understand the root cause

3. Implement the solution and
4. Verify the solution

1.3.5. Computation of quality index:

Assign a number to each of the four states as given in the table below

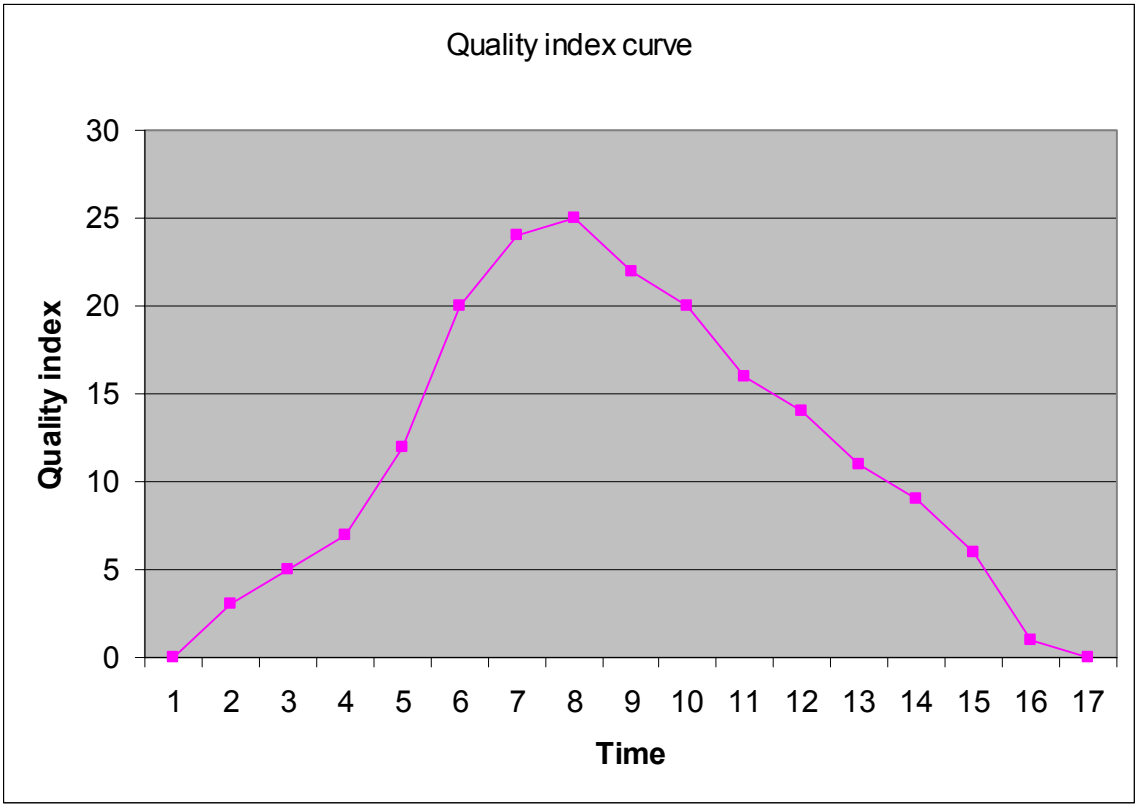
State	Title	Description
3	Unknown	Root cause is not known and the problem is being analyzed
2	Understood	Root cause is understood properly
1	Designed	The fix of the problem is known and is being implemented
0	Verified	The fix is completed and verified. No new problems are created because of the fix.

At any given point in time, the quality index is the arithmetic sum of the states of all defects being tracked.

Defect #	Defect description	State	Comments
22	The balance computed is erroneous when there is only one customer in the database	3	Being analyzed
24	The click on the 'next' button transfers the control to the third page instead of the next page	2	Coding problem
29	The screen designed does not capture the 'customer comments'	1	Design being corrected
30	The system exits abnormally when clicking on the 'find next' button	1	The code is being fixed
32	The 'tab' order is not correct on the screen "capture accounts details for the customer"	0	The fix is complete and verified
	Total (quality index)	7	

Initially the quality index would be zero as there will be no defects reported. The index will then rise as the problems are being found faster than they are being resolved. When the problem resolution process catches up, the index decreases and finally drops down to zero.

An index of zero means that all the known problems are solved. Waiting for the quality index to become zero might end up in shipment delays. Releasing the deliverables to the customer with high quality index would result in quick delivery, but the quality will be poor. The cost of quality for zero quality index would be high. One should evaluate the benefit obtained, then set the target and work towards it. The computation of quality index needs to be done through out the project life cycle on a continuous basis. The typical trend of a quality index is depicted in the figure below:



1.3.6. Managing customer expectations

Expectations are the client's vision of a future state or action, usually unstated but which is critical to our business success. In any business, the aim of the buyer is to buy more and pay less while the aim of a seller is to sell less and get more. A clear requirements specifications document can take care of the client's "requirement". However, the "expectations" are deeper and broader. The success of a project would be measured by the project manager in terms of the deliverables versus scope.

However, from the client's point of view, project success is simply the deliverables measured against his/her "expectations". Acceptance of project deliverables is more based on the client's expectations than the compliance of deliverables versus scope. With the subjectivity involved in the expectations of the client and the conflicting goals between the customer and the developer, naturally it is difficult to achieve the customer satisfaction. Since the client's acceptance of the deliverables and the customer satisfaction brings in the project success, it is very important to manage the customer's expectations.

In the given circumstances, in order to have a win-win situation, it becomes mandatory for the project manager to come up with innovative means for satisfying the customer. Kaustav Chakravarthy suggests three steps to manage customer expectations [6].

1. Setting up expectations
2. Capturing / monitoring expectations
3. Influencing expectations

Setting up expectations: If somebody other than the project team has set up the expectations with the customer, then it is 'uncontrollable'. Instead, if the project team sets up the expectations with the customer, then it is 'controllable'. Hence the project manager should set up the expectations with the customer and not let anybody else do.

Capturing / monitoring expectations: To effectively understand and influence the customer expectations, one needs to capture and document the same and then monitor periodically. Come up with a list of expectations proactively before every crucial discussion and this would help in influencing the customer. Periodically the expectations need to be checked if they still hold and whether they are achievable. In case the expectations are not achievable, it is better to take the help of the person who has set up the expectation.

Influencing expectations: Influencing the customer involves managing his expectations so that the developer can achieve them. Some of the techniques for influencing expectations could be

1. Establish trust: This is required to get the 'buy in' from the customer.

2. Educate: Explain to the customer about the complexity of the work involved. This would make the customer appreciate the developer's work and the impact of their expectations. Solicit suggestions for improvement and implementation of the same.
3. Explain why: Justify our stand by demonstrating the past experience.
4. Do it in private: Discuss the differences in private, as people are less prone to accept defeat or change their minds in the public.
5. Balance the give and take: Often, the project manager is forced to think in terms of offering a solution at less cost or no cost for any gain. Sometimes, the project manager might decide not to let go and as a result, the customer becomes unhappy. In such situations, one can give a solution with additional unstated features for the customer to 'see' the benefit. These additional features might not consume lot of effort, but can contribute to immense customer satisfaction. Satisfy some of the clients' expectations and then negotiate the ones that are not achievable.
6. Show the proof / facts: Show the benefits that the customer would get and then sell the idea.
7. Meet the expectations at an earlier stage: Expectations get firmed over a period of time. Hence it is better not to delay the negotiations.

Many-a-times the unfriendly behavior of the development team towards the customer also would result in customer dissatisfaction. Some of the frequently heard lapses on the development team that should be avoided are

- Poor responsiveness to customer queries
- Not resolving customer issues and complaints on time
- Ego based argument with the customer
- Impolite language
- No active listening to customer's expectations

The project manager needs to strive and manage customer expectations so that the customer perceives a tangible benefit over the competitors and is happy to continue the relationship.

1.4. ISSUES IN PROJECT MANAGER'S SKILLS

There are several traits of good leadership. Most of the mistakes in the project can be attributed to inadequate skills of the project manager due to various reasons. Some of them are given below.

1.4.1. Decision making

The success or failure of the project depends upon the decisions being taken. Right decision taken at the right time would go a long way towards the success of the project. While right decisions depend on the individual's capability, one can definitely improve upon the timing of decision-making. Managers procrastinate issues and risks, which results in the failure of projects. Risks boil down to issues because of lack of executing the mitigation actions. Check up the risk management log and examine the number of instances wherein mitigation actions are taken and the number of instances wherein contingency actions are adopted. That would show whether there has been a proactive decision-making or a reactive decision-making.

1.4.2. Team motivation

Successful companies give equal importance to employee satisfaction as that given for customer satisfaction. While the customer gives an opportunity to do business, the employees come up solution to cater to the customers' requirements. It is partially true that the employees get satisfied with increased pay and good work. However there are other factors that motivate people. While some people can feel motivated with increased responsibility, there could be some other people who get motivated with authority and career growth. There are fast track people and also slow growth people around.

In the rapidly changing industry with high business pressures, project managers tend to take the team members for granted. Execution of the project within the budgeted time and effort, managers usually takes higher priority. This results in low morale of the team and the productivity goes down. More often, the project managers are not skilled enough in team management. Further, if the relationship is not good between the manager and the team, then this can result in attrition also. It is found that most of the people quit because of their managers and not because of the company.

Since motivated individual performs his / her best, managers need to continuously take steps to motivate the team, check the motivation levels periodically and take actions accordingly. The managers need to improve their personality so as to be more approachable for the subordinates. Personal touch would go a long way in motivating an individual. Clear responsibilities and accountabilities of the team members stated upfront at the beginning of the project will make the team members realize their goals enthusiastically. It is mandatory to develop a congenial, family atmosphere in the project to get the best productivity.

1.4.3. Lack of adequate experience of the project manager

In IT industry, organizations do not realize the importance of the skills required for project management. The order of the day is that a team member becomes a team leader within three years. The team leader becomes a project manager at the end of five years. While traditional industry differentiates the maturity of the project manager from the technical team, the IT industry does not. As a result, projects are handled by juniors who have inadequate experience in management or who have no inclination towards management.

People have a wrong perception that technical knowledge is more important than project management knowledge. Unfortunately even many customers think the same! While a junior, less experienced person might know what to do for the project, only a qualified and matured project manager will know what NOT to do in the project. One must also realize that the vision broadens with experience and age. Making a technical team member to handle project management as an added responsibility will lead to problems as he / she would be having only limited knowledge and would be working within boundaries. The young chap would be more dynamic in fire-fighting scenario. On the other hand, an experienced person would be able to effectively foresee problems and take adequate action. Hence a junior, less experienced project manager will not be able to foresee / handle crisis and might land up the project in serious trouble. Many projects have faced this situation for wanting to reduce the cost by investing in senior persons. Ultimately these projects had to spend additional effort to bring back the project on track.

1.4.4. Persistence till the end

The project manager and the team work very enthusiastically in the beginning of the project. However, when the project is boggled with problems and gets prolonged beyond the stipulated time, most of the project managers lose their patience and enthusiasm. There are fighters who take command over the situation, bring it back to control and see the end. However, most of the project managers get bowled over by the situation and the performance deteriorates. As a result, effective decisions are not taken and implemented. This slides the project down in the failure path. And with no energy to apply brakes, the project results in a fiasco. It would be a good practice to change the team periodically if the project is long instead of relying only on the key resources just because they have the core knowledge. One must understand the psychological factors and give them a break. Job rotation to all team members and addition of responsibilities to high performing team members would help improve the results.

1.5. SUMMARY

With increasing pressure to execute the project in a more efficient and more profitable manner, it becomes mandatory that the project manager cautiously looks up for all the risks and takes adequate steps in advance. Continuous health checks of the project would help the manager to be more agile. While proactive measure helps in avoiding the pitfalls, one must be consciously aware of the mistakes in the project execution and ensure that these do not get repeated. Soft issues need to be dealt with carefully. A matured project manager would be able to handle the project well compared to an inexperienced junior.

Software organizations are learning from the mistakes of the past. Knowledge sharing and continuous improvement have become the keywords in the industry. Learnings obtained from the past mistakes are propagated through out the organization in the form of upgraded procedures and processes so as to ensure conscious application of the same. The awareness on the various points discussed above would help the project managers to be aware of the potential disasters, seek change and steer the project to success. This discussion would also help the

organizations to formulate additional processes / change in the processes to ensure improved ratio of successful projects through out the organization.

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