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A Study on Project Management Practices in I.T Industries across Coimbatore

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ABSTRACT

Project management deals with how well we plan a project and organise its resources for the project to attain its customer requirements and specifications. The study deals with current project management practices that is being followed in the organization and risks involved in projects. The success level of the project on following the traditional project management practices is been identified by taking the responses provided by the project team members in and around Coimbatore I.T industries.The objectives of this project is to find the current success level of projects on following Traditional project management practices and importance of scope, time and cost on project success. Through this project it is identified as 56% of the current project management practices have impact on the success level of the projects and scope has to be given more importance as it is most critical to any project.

Keywords: Project Management, Scope, Agile, Coimbatore, IT sector, Cost, Time, Client Interaction.

INTRODUCTION

Project management involves how well we plan and utilize the organization's resources to reach or attain the customer's /client's requirements. In project management, with proper planning it is also important to properly organize the sequence of the flow of activities which in turn helps in achieving the customer's value proposition. In most of the organizations, Project Manager is the sole authoritative person responsible for that particular project. According to Harvard Business Review, roughly about $75-$150 billion are annually lost due to project failures (De Marco, 2018).According to the McKinsey article, in large IT projects - 45% of the projects become over budget, about 7% of the projects take more than the estimated time and about 56% of the project don't deliver the actual value of the project (McKinsey, 2019).The main idea of the proposed project is to identify the success levels of projects on following Traditional project management practices and also to identify the importance of scope, time and cost on project success. The Success level of the projects is vital for both the employee and the organization.

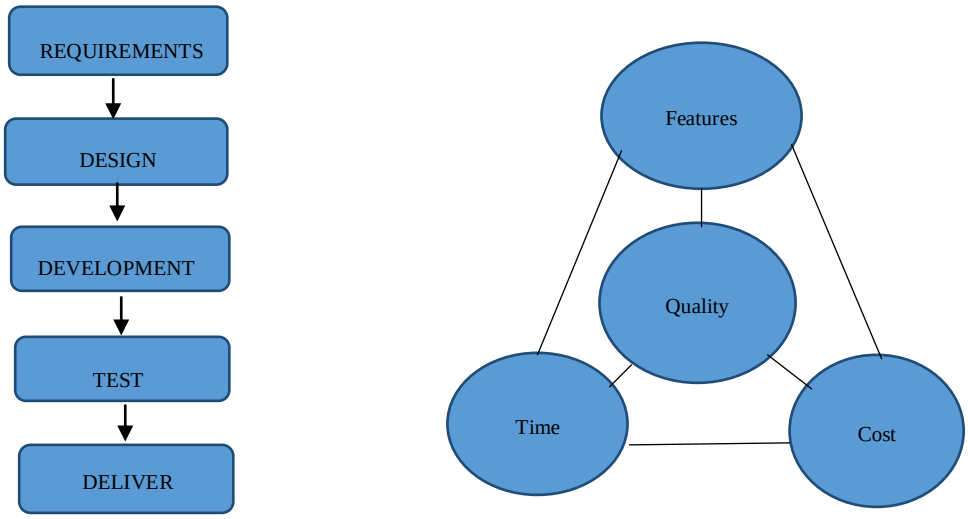

Figure 1.1: Traditional Project Management

There are various factors that acts as constraints for the project, in this study we have included factors like Organization, technical skill, people, Project, process. By measuring these factors, we can understand the major factors that influences project management to perform better. Baseline of all IT firms are project based and it required appropriate project management methods to carry out successful operations for improvising the success rate. This project paves way for increasing efficiency, productivity and responsiveness to customers.

Coimbatore, a major commercial and business hub within the state of Tamil Nadu is that the highest revenue yielding district within the state before Chennai. The city is that the second largest software producer in Tamil Nadu, next only to Chennai. With the launch of Tidel hub in the city, the IT and BPO industry has grown rapidly Companies like Cognizant, Wipro, Infosys, Bosch, IBM, and TCS having a presence in the same city. Apart from it there are around 800 IT companies in and around Coimbatore. So the respondents are collected based on these IT companies around Coimbatore.

The study deals with current project management practices that is being followed in the organization and risks involved in projects. The success level of the project on following the traditional project management practices is been identified by taking the responses provided by the project team members in and around Coimbatore I.T industries. The most critical factor out of scope, time and cost is studied for enhancements that can be made in the project management approach. A project is considered to be successful if a solution has been delivered with respect to the requirements of the client and when it met its success criteria.Project management is the key area that has to be focused for improvement of success rates and it is important to work for the enhancement of the current project management approach for the betterment of accuracy of the project results.Project management is important for every organization because this what that decides the outcome of the project and satisfaction of the clients is based on the outcome that is received. Project management indirectly adds to the profitability.

REVIEW OF LITERATURE

Project Management: Project management deals with how well we plan a project and organise its resources for the project to attain its customer requirements and specifications (Tereso et al. 2019). Each project with the help of project management knowledge areas and process groups tries to add in value to the project by achieving the requirements of the end user. Each project involves unique set of activities and tasks specific to the customer requirements and it doesn't involve repetitive activities. It is also important that the project is within the attainable scope, time and cost for the project to be successful even after implementing the project management knowledge areas and process groups. These three are called the triple constraints of the project which is essentially important for any project to be considered first before starting with the project work(Radujković & Mariela, 2017).

Initiation: The initiation phase of the project is done to determine the main objective for carrying out the project, it also determines if the end goal of the project is within the attainable limits or not(Gomes et al., 2018). In this phase we also try to document the end goals of the project and all the approvals from the stakeholders are got in this phase for the project to proceed further(Varajao et al.,2017). By trying to determine the vision of the project, it also gives a high level picture on the inputs for the other knowledge areas like cost, time etc.

Planning: The planning phase of the project is done to identify the various activities should be done to attain the customer requirements with the specified budget and time (Yu et al., 2018). This planning phase also allows us to add buffer time and resources needed during any critical stage of the project. It is really important for a project to be planned and it acts as a blueprint of the project to reach its end stage.

Execution: The execution phase is done when the activities planned is put into action and this is phase where most of the budget, resources and time is allocated for the activities planned to be executed(Mirza & Ehsan,2017). The output of each activity is measured with the help of project deliverables, each of these project deliverables in turn leads to the end goal of the project.

Monitor and control: The monitor and control phase helps us to determine if each activity done as part of the project is as per plan in terms of budget and time. We typically try to determine if the project has gone overboard, under board or on board in terms of budget and time and we try to take corrective actions based on the identification (Gomes et al., 2018).

Close: The closing phase of the project is done to provide an official sign off from the project team and also an official sign off from the stakeholders and customers stating that the project is completed(Caibula&Militaru, 2021). A meeting is held to with the stakeholders, customers and project team to get official sign-off on the project closure.

Integration management: (Larsson&Larsson, 2020) The integration knowledge area is the broadest and widest knowledge area which connects all the other nine knowledge areas. It gives a high level view of the project and tries to give a big picture of how this project fits into the organisation needs.(Demirkesen&Ozorhon, 2017)This knowledge area, gets the deliverables and output of each knowledge area, connects them together and gives as one project(Banihashemi et al., 2017).

Scope management: The scope management is essential in establishing well-defined scope and also identifies in-terms of any scope creep occurrences whichresults in project failure (Dalsasso& Barros, 2017). The clear scope definition helps in identifying tasks which will be included in the project which in turn prevents from unwarranted changes in the project (Reijndorp, 2018). A frequent review of the scope at each stage of the project is essential so that any occurrences of deviation from the original project scope can be identified at the early stages itself (Valdes, 2019).

Time management: The effective time management is essential and crucial for any project be it small or big (Leal et al., 2018). A project depending

about the size of the work depends the size of the team. The timeline of each work is determined by the team member to whom the work has been allocated. Few team members may sometimes add in a lot of buffer time and provide a timeline, whereas few other team members may underestimate the time and provide the timeline (Eberendu et al., 2018). It is important for the project manager to discuss with all their team members and solve these timeline issues which helps in completing the tasks on time without putting pressure on the team members regarding the timeline (Muegge&Murshed, 2018).

Cost management: To identify if the project has given any ROI to the organisation, the effective cost management plays a vital role (Islam et al., 2017). A proper monitoring on the budget at each phase is really important to determine if the project has gone over budget, under budget or on track in-terms of budget. A proper project budget plan helps to avoid surprise expenses at any stage of the project. It is not always possible to complete the project within the budget, the main focus is trying to make sure the project budget exceeds at a reasonable level (Ji & Chen, 2020).

Quality management: The quality management doesn't try to achieve 100% quality which is unattainable. This tries to achieve consistency across projects (Stepanova, 2019). When the requirements and expectations of the customers and stakeholders are understood and clear agreements have been made with them regarding what is achievable and what is not achievable, it helps to set the expectations right which is turn helps is achieving the required quality of the project (Rajaratnam, 2021).

Resource Management: To get a project done, the right resources and team is essential. Knowing about the team's strengths and weakness, helps in achieving the goals and deliverables of the project easily (Mohagheghi& Jorgensen, 2017). If any training is required for the team members to produce the project deliverable, then the project manager should cater to the needs of the team members and provide the required training to the individual (Utama&Purwandari, 2020). Overutilization and underutilisation of resources also involves cost so the project manager has to make sure the resources are widely used (Kieling et al., 2021).

Communications management: The project manager, project team, stakeholders and customers - with all of them effective communication regarding the progress and update about the project has to be communicated on time (Pheng, 2018). A delay in communication regarding the update or progress of the project to the upstream management creates a lot of chaos and confusion on the project, so communication has to be effectively and efficiently planned such that it reaches all the stakeholders of the project on time with correct and proper understanding (Marco, 2018).

Risk management: For a project, to think it would go smoothly without any risks may just be dream but in reality it is impossible (Tavares et al., 2019). Any projects involves some form of risk or the other and it is important for the team to expect the unexpected and come up with mitigation plans so that even if the risk arises the team with the help of mitigation plans can try to avoid the intensity of the risk occurrence (Valerio et al., 2020).

Procurement management: The procurement management knowledge area tries to identify the resources to be procured from outside as they are not available within the organisation at the time of project start (Damasiotis et al., 2017). This knowledge area acts as a blueprint on what all resources needs to be procured from outside and what all resources are available within the organisation. Doing this beforehand, helps us to procure the resources at the right time of the project and this is in turn helps us to avoid any delay in the project start (Zafar et al., 2017).

Stakeholder management: A stakeholder is not only the person who came to the organisation with the project request, for a project a list of stakeholders include team members, customer, suppliers, public etc. and the list is exhaustive depending upon the project (Pirozzi, 2018). A person said to be stakeholder if they have a positive or negative impact on the project and also the stakeholder can be internal or external to the organisation. Knowing the level of impact the stakeholder has on the project helps to provide the right amount of information needed for that stakeholder.

OBJECTIVES

The objectives of this project is

- To find the current success level of projects on following Traditional project management practices.
- To study the importance of scope, time and cost on project success.
- To study the risks involved in current project management practice & identifying an alternative approach for handling risks.

METHODOLOGY

The questionnaire was prepared with the help of the research literature and expert opinions. It also had some general questions like designation, Age of organization, Experience of the individual as well. This phase consisted of distribution of questionnaire and collection of data from target respondents restricted to the I.T industries in and around Coimbatore. This research is a Causal research. It is investigation on the cause and effect relationship between Success level and the factors contributing for the success of projects. The questionnaire was given to IT sector employees and their responses were captured. The data collection was cross-sectional rather than longitudinal as it represented snapshot of perceptions of employees on project management practices and opinions about alternative approaches for reducing risks involved.

Employees of IT company'sresponses were collected through various medium like Social media, LinkedIn, Gmail through which questionnaires were circulated amongst them. The idea of the study was briefed to those who requested for it and assistance was provided to interpret the questions

correctly. The data collection process lasted nearly 4 weeks.

ANALYSIS AND INTERPRETATION

The demographic distribution of the respondents is depicted below:

Frequency Table: **Table 4.1**

	Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Gender	Male	1	72	66.67	67.29	67.29
	Female	2	35	32.41	32.71	100.00
	Total		107	100.0	100.0	
Age	20 to 30	1	89	83.18	83.18	83.18
	31 to 40	2	18	16.82	16.82	100.00
	Total		107	100.0	100.0	
Nativity	Urban	1	73	68.22	68.22	68.22
	Rural	2	34	31.78	31.78	100.00
	Total		107	100.0	100.0	
Qualification	B.E	3	88	82.24	82.24	82.24
	MBA	4	15	14.02	14.02	96.26
	M.E	5	4	3.74	3.74	100.00
	Total		107	100.0	100.0	
Size of Organisation	Less than 25	1	34	31.78	31.78	31.78
	25-100	2	64	59.81	59.81	91.59
	100-250	3	9	8.41	8.41	100.00
	Total		107	100.0	100.0	
Role Distribution	Management	1	9	8.41	8.41	8.41
	Production	2	7	6.54	6.54	14.95
	Administration	3	43	40.19	40.19	55.14
	Sales	4	10	9.35	9.35	64.49
	IT	5	38	35.51	35.51	100.00
	Total		107	100.0	100.0	
Experience Distribution	Less than 1	1	76	71.03	71.03	71.03
	1 to 3	2	18	16.82	16.82	87.85
	4 to 6	3	12	11.21	11.21	99.06
	7 to 10	4	1	0.94	0.94	100.00
	Total		107	100.0	100.0	
Critical Factors	Scope	1	64	59.81	59.81	59.81
	Time	2	22	20.56	20.56	80.37
	Cost	3	16	14.95	14.95	95.33
		4	5	4.67	4.67	100.00
	Total		107	100.0	100.0	

ANOVA TEST

One Way Variables = Knowledge about project Management. Awareness about Agile Project management By Qualification

Descriptives

Table 4.2

		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Knowledgeaboutproj,mgmt.	B.E	88	7.22	1.15	.12	6.97	7.46	2	9
	MBA	15	6.53	1.06	.27	5.95	7.12	5	8
	M.E	4	6.75	.50	.25	5.95	7.55	6	7
	Total	107	7.10	1.14	.11	6.88	7.32	2	9
Awareness about agile	B.E	88	1.45	.86	.09	1.27	1.64	1	4
	MBA	15	1.33	.82	.21	.88	1.79	1	4
	M.E	4	1.75	.96	.48	.23	3.27	1	3
	Total	107	1.45	.85	.08	1.29	1.61	1	4

It is inferred from Descriptives that those respondents / I.T employees who have qualification of B.E have answered positively for the Knowledge about project management & Awareness about Agile.

ANOVA

Table 4.3

		Sum of Squares	df	Mean Square	F	Significance
Knowledgeabout proj.mgmt.	Between Groups	6.49	2	3.24	2.57	.04
	Within Groups	131.38	104	1.26		
	Total	137.87	106			
Awareness about agile	Between Groups	.57	2	.28	.39	.03
	Within Groups	75.90	104	.73		
	Total	76.47	106			

Dependent Variables: Knowledge about project management & Awareness about Agile

Predictor: Qualification

The Significant figure indicates that there is significance in relationship between the predictor and the Dependent variables. The Significant figure of Knowledge about project management is 0.04 < 0.05 which indicates high significant effect on dependent variable. The Significant figure of Awareness about Agile project management is 0.03 less than 0.05 which indicates high significant effect on dependent variable. Hence Qualification level of employees has significant effect over their Knowledge about Project management and Awareness about Agile project management.

ANOVA – Project Management Practices [Dependent] Vs Age of the Company [Predictor]

Table 4.4

		Sum of Squares	Mean Square	F	Significance
There is a significant influence of scope, time and delivery on the project outcome.	Between Groups	.02	.02	.05	.82
	Within Groups	48.61	.46		
	Total	48.64			
Scope is well defined for the projects.	Between Groups	.37	.37	.70	.40
	Within Groups	53.59	.53		
	Total	53.96			
Scope creep is acceptable in ongoing project.	Between Groups	.93	.93	1.73	.19
	Within Groups	54.60	.54		
	Total	55.53			
Scope can be dynamic in nature for the projects.	Between Groups	.51	.51	.73	.40
	Within Groups	72.88	.71		
	Total	73.39			
Scope is most critical for successful completion of the project	Between Groups	.00	.00	.00	.99
	Within Groups	69.59	.66		
	Total	69.59			
Resource planning elements are highly prioritized with the project management.	Between Groups	.72	.72	1.12	.29
	Within Groups	66.86	.64		
	Total	67.58			
Project resource planning is linked with estimation of duration of the project.	Between Groups	2.53	2.53	4.42	.04
	Within Groups	60.23	.57		
	Total	62.77			
Change in scope leads to change in delivery duration	Between Groups	.37	.37	.63	.43
	Within Groups	61.03	.58		
	Total	61.40			
Projects Stay within allocated budget.	Between Groups	4.80	4.80	8.91	.00
	Within Groups	55.43	.54		
	Total	60.23			
Time and cost differs based on changes in scope	Between	.97	.97	1.63	.20

		Sum of Squares	**Mean Square**	**F**	**Significance**
	Groups				
	Within Groups	62.45	.59		
	Total	63.42			
WBS, Change control board and client interaction are the major practices involved in current project management practices.	Between Groups	.27	.27	.48	.49
	Within Groups	58.23	.56		
	Total	58.50			
Adjusting the budget based on changes in requirements leads to improvement in accuracy.	Between Groups	4.68	4.68	8.28	.00
	Within Groups	58.72	.56		
	Total	63.40			
Reduction of resources such as budget, software of manpower reduces the success of a project.	Between Groups	3.67	3.67	5.99	.02
	Within Groups	63.13	.61		
	Total	66.80			

From the above Anova analysis made for testing whether there is significant influence of Age of the organization and the project management practices they use , It is inferred that

i) The Significance of figure of variable **Project Resource Planning Linked with Estimation of the Project** 0.04 < 0.05 shows that the Age of organization has significant effect on planning the project resources.

ii) The Significance figure of variable **Projects stay within allocated budget** 0.00<0.05 which indicates that there is highly significant effect of Age of the organization over allocation of budgets for the project. i.e. Budget allocation process varies from organization to organization.

iii) The Significance figure of variable **Adjusting the budget based on changes in requirements leads to improvement in accuracy** with 0.00 < 0.05 indicates that there is high significance effect of Age of the organization over this opinion of adjusting the budget.

As a whole, the Age of the organization has some influence over the Project management practices it carries out.

Regression [Current Project Management Practice * Success level of the projects]

Table 4.5

Model	Variables Entered	Variables Removed	Method
1	i) There is a significant influence of scope, time and delivery on the project outcome.		
	ii) Scope is well defined for the projects.		
	iii) Scope creep is acceptable in ongoing project.		
	iv) Scope can be dynamic in nature for the projects.		
	v) Scope is most critical for successful completion of the project		
	vi) Resource planning elements are highly prioritized with the project management.	.	
	vii) Project resource planning should be linked with estimation of duration of the project.		
	viii)Change in scope leads to change in delivery duration projects should stay within allocated budget.		
	ix) Time and cost differs based on changes in scope		
	x) WBS, Change control board and client interaction are the major practices involved in current project management practices.		

	xi) Adjusting the budget based on changes in requirements leads to improvement in accuracy. xii) Reduction of resources such as budget, software of manpower reduces the success of a project.		

Dependent Variable: Success Level of the Projects based on Current Project Management Practices

Model Summary

Table 4.6

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.56	.32	.24	.89

The variables entered (Current project management practices) have 56% impact on the success level of the project.

ANOVA

Table 4.7

Model		Sum of Squares	Mean Square	F	Significance
1	Regression	32.28	2.93	3.71	.00
	Residual	68.89	.79		
	Total	101.17			

Dependent Variable: Success Level of the Projects

The Significant figure 0.00 < 0.05 indicates that there is high significance in the relationship between Success level of the projects (dependent variable) and Current project management practices (Predictors).

Coefficients (a)

Table 4.8

	B	**Std. Error**	**Beta**	**t**	**Significance**
(Constant)	8.06	1.21	.00	6.65	.00
There is a significant influence of scope, time and delivery on the project outcome.	.63	.20	.35	3.06	.00
WBS, Change control board and client interaction are the major practices involved in current project management practices.	-.55	.18	-.34	-2.96	.00
Adjusting the budget based on changes in requirements leads to improvement in accuracy.	-.50	.20	-.32	-2.50	.01

The significant figure of Influence of Scope, time & delivery on project outcome (Predictor) is **0.00**<(0.05) which indicates high significant effect on the dependant variable Success level of the projects.

The significant figure of WBS, Change control board & client interaction (Current proj. management practices) (Predictor) is **0.00** < (0.05) which indicates high significant effect on the dependant variable Success level of the projects.

The significant figure of Adjusting the budget based on changes in requirements (Predictor) is **0.01**< (0.05) which indicates high significant effect on the dependant variable Success level of the projects.

SNAPSHOT

The following findings were obtained:

- It is also identified that 56% of the current project management practices have impact on the success level of the projects.
- The Current project management practices have 56% impact on the success level of the project.
- Scope has to be given more importance as it is most critical to any project.
- Current success level of the projects has been analysed.It has been identified that in spite of current project management practices, there are risks that arises amidst of project development.As a result of the findings and in accordance with many other literature the problems and

challenges are:

- Change of Scope and Scope definition
- Change control board
- Client interaction

So following agile project management will help in handling these issues.

CONCLUSION

There are different types of projects and circumstances that require different project management approaches. Traditional project management is the approach which is usually followed in all I.T organizations. The drawback here is the ill-defined scope in any project may lead to its decrease in success level of the projects. It is obsolete to handle the dynamic scope that arises during the project. The success level of the projects can be increased with the help of Agile Project Management. In Agile, the involvement of client's plays a significant role and this is in-turn enhances the success of the project. The scope definition and effective change control board, compared to traditional project management practices in Agile, these two have been periodically reviewed and any deviation from the project scope has been significantly identified in the initial stages of the project itself.

The scope, time and delivery of project outcome plays a significant role in determining the success of the project. In tradition project management practices, the scope once defined cannot be changed and this is turn even if the customer feels to make few changes in the scope in the mid-phase of the project, the lack of flexibility in the scope change in traditional project management practices results in unhappy customer with unhappy project results. Also the lack of mid-review and checkpoints of the scope with the customer, fails to point out the deviation of the project in case if arises any. In all these cases Agile comes as a solution with providing provisions for all the pain-points of the customers mentioned above, which in turn increases the success level of the project.

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