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An Empirical Analysis of the relationship between Project Success Criteria and Project Planning Techniques used in Construction Industry of Pakistan

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ARTICLE DETAILS	ABSTRACT
History: Accepted 22 Nov 2020 Available Online 31 Dec 2020	<p><i>The purpose of this research study is to look at, how the utilization of planning techniques / strategies having the most important impacts on any project /organization's success and imaginative problem-solving. In particular Project Planning Techniques, three most important arranging basic strategies including, Gantt graphs, case-based arranging and basic way investigation, were studied & analyzed. As this study is an empirical in nature which purposes to highlight the project standards used to examine the accomplishment of projects and the project planning techniques being practically applicable. It is quantitative research study and questionnaires were asked to access the variables and associate with the existing literature. Project Success criteria were graded which were found to be dissimilar in this field as compare to others. It also presented the knowledge and usage of project planning techniques for categorizing the room of improvement as for as the Project Success is concerned, where some professional trainings are required for the project team members. The role of Effective Project Governance is also very vital for project success as well. The main focus and targeted area is the construction industry of Pakistan.</i></p>
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1. Introduction

Project Management Practices have been being used in the entire world ,for millennia since the Egyptian period (Kwak, 2003) despite the fact that these are considered as conventional or in house fabricated practices to successfully deal with the project tasks, however the most interest in

undertaking the executives as well as the project managers, also has expanded fundamentally in the course of the most recent couple of a very long time as the scholarly community projects and experts have felt its need (Ika, 2009). Pakistan lies at 6th position among the most crowded nations on the planet of this entire world, with expanding economy and yield of \$232.29 billion for each annum, there is a requirement for foundation improvement which is being embraced at top level at this moment (I.A. Khan, 2017).

The presence of unfamiliar organizations and ventures have expanded therefore, over the most recent couple of years. To give a favorable climate to these new contestants on the lookout, foundation advancement is basic. China Pakistan Economic Corridor (CPEC) is a route forward toward this path; it gives occasions to modern improvement particularly in energy area and other related tasks (Esteban, 2016). There is a requirement for the neighborhood organizations to work with global guidelines to remain in rivalry with the unfamiliar organizations. For instance, PMI contrived task to the project managers, rehearse are generally utilized by unfamiliar organizations and perceived by unfamiliar customers (Haider, 2019).

There are numerous project planning techniques which are inadequate in the nearby development market of Pakistan while being broadly utilized by the unfamiliar project organizations that are presently giving difficult stretch to the neighborhood organizations. It is the need of great importance that such apparatuses ought to likewise be utilized reliably and consistently in the neighborhood development industry of Pakistan. The use of such measures for making a decision about the achievement and keeping a mind its encouraging, despite the fact that continued in Pakistan, is for the most part mixed up and sporadic. (Dogar, M. Nadeem; Butt, A. Ejaz, 2017).

2. Literature Review

For practically 50 years, organized structured project management approach alongside most appropriate apparatuses and strategies are being utilized by associations particularly for viable administration of remarkable and accordingly complex undertakings (Kwak, 2003). By undertaking Project Management, is viewed as more powerful and effective than conventional techniques for the project managers (Avots, 1969). It's also some emerging concern over the dissatisfaction of growth anticipating to achieve the project objectives (Laufer, 1987).

It goes about as a rule to continue to make progress, limiting shocks and making progress. Dealing with the task viably and effectively is very troublesome and complex due to ceaseless change in prerequisites of project stakeholders and barrage of such change orders towards project manager (Sohail et al., 2020). A usage approach is dictated by the project manager's decision of intensity bases to be applied and strategies to be utilized (Nutt, 1983).

Figure 1: Key elements of successful project planning

Each undertaking project varies from one another. Some in size or its uniqueness or multifaceted nature or all, hence the rules for making a decision about progress changes with project making it hard to make a widespread arrangement of undertaking achievement standards on which all projects every venture can be judged and all clients/customers will be concurred (Haider & Kayani, 2020).

All of project stakeholders relying on their comprehension of undertaking and necessities from the task decipher project achievement in an unexpected way (Lim, 1999). Standard arranging procedures, for example, PERT, and the well-known programming devices that help them are deficient for projects including vulnerability in the venture course and assignment spans (AlKahtani et al., 2020). Moreover, every industry has made its own particular benchmarks for their project management along which exhibitions are made a decision about in this way execution judgment additionally fluctuates. (Chan, Scott, & Chan, 2004). Muller and Jugdev's (2012) have concentrated over the project success writing consistently and sums up the advancement of this writing and understandings of experts about this project. They have closed it by saying "it is a multi-dimensional and organized develop". 1960s considered as the starting long stretches of undertaking the board, Technicality of item was the lone achievement models around then. The possibly measure was to check if item is turned out great or not. With the time, as venture the executives develops, measures as progress standards likewise expanded.

During the 1970s, achievement models for project management extended to incorporate consummation inside time, within budget, and project should be finished with worthy degree of value. Extension time and cost consolidated and was given the name of "triple imperative" and gave as the premise to a large part of the venture the board business. During the 1980s, project the board develops further, achievement rules included acknowledgment by the client. At that point in 1990s more rules were added, which incorporated that primary work stream of the association ought not be upset and without getting change in the corporate culture (Iqbal et al., 2020). Undertaking Project managers have begun utilizing various planning techniques and procedures which help them in masterminding errands inside project life cycle. This shows up as right strategy since different number of studies have suggested that project the executives' tools and methods should be utilized as it has an incredible effect over the achievement of an undertaking (Milosevic, Inman et al., 2001), (Might & Fischer, 1985), (Coombs, McMeekin et al., 1998), (Thamhain, 1996),

While, if wrong tools are utilized it will accomplish more harm than great. Utilizing the perfect tools/Project Planning Techniques at the perfect time is the stunt for achieving the achievements in project objectives. (Cash and Fox, 1992) Hatfield, 1995; Thamhain, 1996; Kerzner, 2000).

Among numerous PMTT accessible for the management of project, significant inquiry is 'The means by which these Project Management Tools and Techniques are really being utilized practically speaking?' Thamhain's has learned about experience with the utilization of such tools/techniques among project managers and presumes that solitary 28% of tools/techniques are really being utilized by project supervisors and just half of Project Planning Techniques/strategies are known by project managers (Thamhain, 1999). Alike thing was a sub part of research done by White and Fortune in 2002 and initiate nearly similar results. Besner and Hobbs (2004) study included about 72 PMTT and determined that maximum of the tools and techniques in their study were used frequently in high cost and extended projects (projects costing more than one million dollars.

Figure 2: Hypothesized Model

H1: Project Success Criteria has a +ive influence on “Project Success” ?

H2: Project Planning Techniques have a +ive effects on “Project Success” ?

H3: Effective Project Governance has a +ive effect on “Project Success” ?

3. Research Methodology

The methodology used in this research study is quantitative, as this research basically aims to find statistics for different independent variable to inculcate into our dependent variable that is “Project Success”. It aims to rank the success criteria, factors in terms of Project Planning Techniques and Effective Project Governance which should use in construction projects within Pakistan to get more fruitful results. It will enable us to see the most important success criteria and critical success factors taken in account within construction projects. This ranking will show the comparison of culture of Pakistani Construction projects with the information extracted from literature review. Beside this, this research will also identify the tools and Project Planning Techniques used within the organization that is suggested by PMBOK.

Questionnaire was made in Google survey and link was shared with professional engineers using different forums like emails, LinkedIn and Facebook. Numbers of responses received were 155. Out of which 16 responses were removed because of wrong entries in demographics (e.g. some chose role of organization which was not directly related to civil/construction works or demographics

questions were left blank.). 2 entries were removed as they didn't answer the questions related to dependent variable. 3 responses were received that marked all entries as "Don't know about this tool", thus they were removed. Rest of (139) entries was entered in SPSS. After using Mahalanobis Outliers test which removed 5 entries as their values shown was less than desired value of 0.001.

Basically there are considered 3 major roles in construction industry. One is Client who actually will use the building for personal use or to enhance the business. The Second party is consultant which is hired by client for designing and all the technical stuff of construction like quality assurance, structural designing etc. to ensure successful completion of project. 3rd party is contractors which can be suppliers, service providers or both. They have all the expertise to perform activities and successfully manage the project and hand over to client after due inspection by consultant.

Organization can be divided in three different types with respect to its structure. Projectized Organizations that hire staff for their projects and after completion of projects they transfer the staff to other projects or if not they fire the staff. Functional Organizations are the ones who don't perform any projects or if they do they use their functional permanent staff to manage that project. Third part is Matrix which uses the traits for both of above-mentioned projects. Respondents for this survey consisted of 43.4%, 39.1 % and 17.4% divided in Projectized, functional or matrix/composite respectively.

When it comes to construction field, there are multiple type of constructions and best way to deduce about construction field is to include data not only from buildings but from roads, highways, hydraulic structures etc. Respondents for this survey belonged to all type of constructions. 23.7 % from high rise buildings, 17.6 % from low height buildings, 23.7 % from roads, 10.4 % from hydraulic structures and 24.6 % from other miscellaneous type of constructions like industrial plants heavy foundation, steel structures, solar panels pad, culverts etc.

Below table shows that size of project team in projects through which our results would be deduced. Each organization involved in construction needs different number of people in team to successfully manage the project (Iqbal et al., 2020). The team size depends on the responsibility of the party. More the responsibility greater team size would be required. Thus to keep the results giving real image of practical fields, data should be gathered from projects with different team sizes. Degree of involvement and responsibility is dependent over respondents' role in project which in this case mostly was from Project Manager and Project Team. Most of others have written their original role which according to project management comes under the Project Team head.

4 : Sample Profile:

4.1 Gender:

	Frequency	Percent	Valid Percent	Cumulative Percent
<2	38	28.1	28.1	29.1
2-5	81	59.8	59.8	84.9
6-10	9	6.9	6.9	93.1
>14	11	8.1	8.1	100.0
Total	139	100.0	100.0	

4.2: Project Planning Techniques:

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	35	21.5	21.5	21.2
Agree	47	36.9	36.9	57.8
Neutral	44	32.8	32.8	91.1
Disagree	12	9.2	9.2	99.3
StronglyDisagree	1	.7	.7	100.0
Total	139	100.0	100.0	

4.3 Effective Project Governance

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	21	14.8	14.8	14.8
Agree	52	37.8	37.8	52.6
Neutral	58	43.0	43.0	95.6
Disagree	7	3.7	3.7	99.3
Strongly Disagree	1	.7	.7	100.0
Total	139	100.0	100.0	

4.3 Project Success

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	20	17.0	17.0	17.0
	Agree	57	37.8	37.8	54.8
	Neutral	55	40.7	40.7	95.6
	Disagree	6	3.7	3.7	99.3
	Strongly Disagree	1	.7	.7	100.0
	Total	139	100.0	100.0	

4.4 Key role of Engineers in Project Success:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	37	24.4	24.4	24.4
	Agree	62	45.2	45.2	69.6
	Neutral	36	27.4	27.4	97.0
	Disagree	3	2.2	2.2	99.3
	11	1	.7	.7	100.0
	Total	139	100.0	100.0	

4.5 Effective Project Governance

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	12	14.8	14.8	14.8
Agree	60	42.2	42.2	57.0
Neutral	48	36.3	36.3	93.3
Disagree	8	5.9	5.9	99.3
Strongly Disagree	1	.7	.7	100.0
Total	139	100.0	100.0	

4.6 Project Success is a tool to increase the productivity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	35	23.7	23.7	23.7
	Agree	56	40.7	40.7	64.4
	Neutral	35	25.9	25.9	90.4
	Disagree	11	8.1	8.1	98.5
	Strongly Disagree	2	1.5	1.5	100.0
	Total	139	100.0	100.0	

5: Measurement Model**5.1 Reliability Testing**

Variable	Cronbach's Alpha
Project Success	0.895
Project Success Criteria	0.773
Project Planning Techniques	0.812
Effective Project Governance	0.774

Variable	Composite Reliability
Project Success	0.908
Project Success Criteria	0.853
Project Planning Techniques	0.885
Effective Project Governance	0.823

	Average Variance Extracted (AVE)
Project Success	0.924
Project Success Criteria	0.663
Project Planning Techniques	0.656
Effective Project Governance	0.813

The value of rho A is given in below table:

	rho_A
Project Success Criteria	0.917
Project Planning Techniques	0.816
Effective Project Governance	0.854
Project Success Criteria	0.831

6: Conclusions and Recommendations

It can be concluded that culture of Pakistan construction industry is different. Though most important criterion considered here was meeting client requirements but after that Meeting quality standard and to deliver enhanced reputation of organization preceded rest of success criteria. It can be said using this information that within Pakistan construction industry delivering right and flawless thing is more important than meeting deadlines of cost and time if one thing is to be chosen from these constraints quality is considered more important than rest depending upon client requirements. After all the results, it is recommended to increase the knowledge about benefits of using Project Planning Techniques for right purpose to increase the efficiency of effort used to achieve the project success.

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