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Management of Project Changes in Construction Companies: Case of Pakistan

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Abstract: The goal of this study is to analyze the level to which project changes are affected by risk management, project control, change management, with a view to suggest a workable plan for the project managers in Pakistan, to incorporate change management in Khyber Pakhtoonkhawa (KPK)province of Pakistan's projects. This study explores whether the risk management reduces the impact of project changes? Project control ensures the timely detection of changes and an efficient response and change management ensures the effective realization of formally approved changes. The result reveals that risk management, project control and change management impact positively in reducing project cost, whereas change management has negative impact on project time and project control.

Key words: Risk management · Project control · Change management · Project managers · Pakistan

INTRODUCTION

Projects procedures are typically drawn to make certain that work is performed to the pet quality, in the permissible time and according to finances. Deviations from the plan though take place and in construction industry such deviations are frequent. Such deviations are not predictable due to the nature of construction work and risks coupled with it. In case where the divergences are large, control action is usually compulsory to attempt to bring actual performance on track with the preferred status of the plan. Progress on the plan required is to be checked and evaluated as the work progress in order to identify and measure these divergences. Pakistan is a developing country wishes the use of latest coordinated approaches for improving competence, consistency as well as accomplishment. Which are compulsory for the business world? In this changing world new dimensions are developing for success measure of the project [1]. The numbers of project failure are more in Pakistan as compare to the developed countries. There are several reasons of project failure but the studies shows that the major factors are lack of risk management, project control and change management. Past incidents have shown that procedure of project planning and project implementation in Pakistan has endured from inherent obstacles ranging from conceptual dissimilarity about the projects. Hastily prepared viability studies lacking in proper technical and economic information and insufficient basic information obtained trough investigation leading to insufficient project monitoring and project evaluation. To overcome this problem and to verify that these variables can result in increase performance of the project, this study is conducted in KPK. We have chosen risk management, project control and change management as major factors that can have an effect on the project changes. Risk management, project control, change management must have a specific impact on the efficiency of project changes. There are a lot of systems that are conventionally used in construction industry to check and report on the development of the project. Several of them are based on information linked to activities whereas others depend on work nature. There are five stages of a project in Pakistan. Project identification, project preparation and formulation, project authorization, project implementation and project

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evaluation. Project identification is largely based on political decisions. "Even an excellent project plan cannot prevent all unexpected surprises" [1] and "even the most sophisticated plans can fail due to changes in customer requirements". Another judgment is also very important the cost of change rises as the project progresses (due to a poor plan) [2]. Several changes can be projected on the basis of past experience with prior similar projects, the project team can already respond in the planning phase, using risk management tools [3], but it is impossible to totally de-risk the project [4]. A small number of authors state such changes but it can not be found "one-size-fits-all" change management model" to help all types of changes. Change management is also included in risk management and project control. In combination with ideas obtained, performed many projects in practice [5] formulate an incorporated model of change management that comprehend project risk management, project control and change management. He verified the construct by empirically researching Slovenian enterprises.To reduce the consequences of change, common project planning tools such as risk analysis can be used.

The Construction Industry Institute established the Project Research Team to find a method to avoid delays, inflated cost, general claims and even costly litigation associated with project change. They hypothesized that significant savings in the total cost and time of any construction project were attainable by improving the management of changes [5].In all construction industry risk management is a significant part of decision-making process. Risk can potentially impact the construction projects. Risk can affect production, performance, quality and the cost of a project. Therefore, the suggested pre-construction approach enables the executors of projects in carrying out professional monitoring and control of two most important aspects necessary for the success of any construction project [6]. The handling of all formally requested changes and their effective implementation are included in the process of change management. Hidden changes that are exposed early can also be handled in the formal process. Irrational changes may be rejected. Change Management involves understanding and controlling the disclosure to risk, generally risk to the industry is handled in an well-organized and effective way.

The study is divided in to following section. After introduction which is presented in Section 1 above, Section 2 describes review of literature. Data source and methodological framework are shown in Section 3. Results are discussed in Section 4. Final section concludes the study.

Literature Review

Risk Management: Uncertainty is a part of construction industry, regardless of the level of the project. Other risk factors that carry risk include: complexity, speed of construction, location of the projects and familiarity with the work. When serious risks occur on the projects the effects can be very damaging. Risk management is one of those areas that have been appearing most disregarded [7]. Project risk is an uncertain event or condition that, if it occurs, has a positive or a negative effect on at least one project objective. A factor, element, constraint, or course of action that introduces an uncertainty of outcome, either positively or negatively, that could impact project objectives. Risk can be defined as the combination of the probability of an event and its consequences. Risk management should be a continuous and developing process which runs throughout the organization's strategy and the implementation of that strategy. Risk is the possibility of an event or activity impacting adversely on an organization, preventing it from achieving organizational outcomes. Risk management comprises the activities and actions taken to ensure that an organization is conscious of the risks it faces, makes informed decisions in managing these risks and identifies and harnesses potential opportunities [8]. The risk of change often avails itself in five ways.

- The risk of unauthorized and properly assessed changes
- The risk of unplanned outages
- The risk of a low change success rate
- The risk of high numbers of emergency changes
- The risk of significant project delays

Commonly unpredicted events take place in projects and results in positive or negative outcome in the form of deviation from the project plan. Outcomes that are positive create opportunities whereas negative outcomes generate a threat. Risk focuses on the avoidance of loss from unexpected events [9]. Several dentitions of risk are available in the literature and risk is usually referred to as an exposure to losses in a project [10-12] or as a probability of losses in a project [13, 14]. In the article technique for risk management by Ahmed *et al* [15] describes that risk is quantifiable and lends itself to assessment and analysis through computational methods. A situation where it is not possible to attach a probability of occurrence to an event is define as uncertainty [16]. While uncertainty is not measurable, it can be estimated through subjective assessment techniques. The risk

managing procedure refers towards detecting weaknesses in techniques used in product expansion through a controlled approach so as to well-timed alleviation proceedings are starting to mitigate risk, transmit risk, decrease risk probability. Risk management is an activity within project management that is gaining importance due to current business environment with a global focus and competition. Stare [5] determined that management of risk discover potential changes and avoid or shrink their impact. Changes in the objectives and scope are one of the major risk factors. The extensive view of risk comprise of both ambiguity due to upcoming proceedings and the consequences of partial information. Risk disclosure arises from the likelihood of financial, economic or social loss or gain, substantial damage or delay. The importance of risk is the impact they might have on the attainment of proposal objectives and management effectiveness. Consequences of risk cause the need intended for management consideration. The process of risk analysis is identifying risks, estimating their likelihoods and evaluating potential consequences. Experts in the field of risk management propose a variety of measures to decrease risks. Since the mainly successful approach is the risk (changes) anticipation we assume in that risk management is useful in avoiding expected changes [16]. At the point of project implementation risk management overlap by project control that is the second part of the model. If a team is not able to find suitable actions to avoid changes, then they must plan preventive measures to decrease the likelihood of the risk realized. If the risk is materialized the reaction can be quicker using risk management whereas in a usual control process actions can only be defined at the classification and examination of the problem which takes extra time. On the basis of above discussion, the study hypothesize the following i.e.,

H1: *There is likelihood that risk management reduces the project time.*

H2: *There is likelihood that risk management reduces the project cost.*

Project Control: Project control makes sure that the well-timed recognition of changes and efficient reaction, management of changes make sure the efficient insight of formally accepted changes. The anticipation of change makes available a concentrated and more persistent control that makes certain an early on exposure of change and quick reaction. A significant avoidance measure is having a elevated thorough product formation. Control actions usually are accomplished to make sure risk reactions are carried out. On the other hand control conducts are risk responses. A particular control action can tackle several risk responses and numerous control actions might be essential for single risk response. Basically there are three categories of control i.e. preventive controls, detective, manual (People Based). It is also brought into consideration that experts take into account the control of changes in “project control”. In only six books out of almost fifty in the field of project management we discover change control as one of the control areas [17- 21]. By connecting several statements we found a two-way association of control and change counteractive methods in-case where changes direct to schedule and scope changes whereas instruments can be helpful if they are appropriate and within time. Well-timed reaction based on standard performance following, at the same time performance following and the evaluation of deviation will lead to the exact information if team has the knowledge of prior changes. This means that project changes must be appropriately document, project stakeholders should be updated regarding the changes and schedule have to be customize on the same basis. Whereas control as well makes sure the early on exposure of unforeseen changes, thus minimizing the unhelpful effect of alteration. Adding up, standard project control efficiently identifies unexpected through changes and vital functioning changes as a consequence of discovered mistake and problems.Control is inspecting existing performance against pre-determined actions mentioned in plan, with a vision to make sure sufficient growth and acceptable performance. Controlling is the measurement and correction of performance in order to make sure that enterprise objectives and the plans devised to attain them are accomplished [21].

Management is the profession of control. In formulated one of the first definitions of control as it pertains to management, Control consists of verifying whether everything occurs in conformity with the plan adopted, the instructions issued and principles established. Its object is to point out weaknesses and errors in order to rectify them and prevent recurrence [22]. In previous studies comprehensive definition of managerial control is presented:

Management control can be defined as a systematic effort by business management to compare performance to predetermined standards, plans, or objectives in order

to determine whether performance is in line with these standards and presumably in order to take any remedial action required to see that human and other corporate resources are being used in the most effective and efficient way possible in achieving corporate objectives [22].

In addition control can be defined as "that function of the system that adjusts operations as needed to achieve the plan or to maintain variations from system objectives within allowable limits". The control subsystem works in secure agreement with the operating structure. The extent to which they act together is depended on the nature of the operating system and its vision. Controlling is a procedure which directs the definite performance aligned with the designed targets of the organization. Therefore, targets and objectives are frequently referred to as Siamese twins of managing. The managerial purpose of managing and improvement of performance to make certain those project objectives and the targets are work out to accomplish them being completed. Distinctiveness of control is an incessant management process. Control is entrenched in every level of organizational chain of command. Control is frontward gazing and directly associated with planning. It is an instrument for accomplishing organizational actions. It is a finishing process. Take place in the similar progression and uphold a regular connection to each other in all system [21]. The primary factor is the feature or form of the working system that is to be considered. We choose a precise feature because association exists among it and how the system performed. The next element of control is sensor, is tool for determining condition. The third aspect of control is comparator, verifies the requirement for improvement through comparing what is happening with what have been intended. Numerous divergences from plan are common and probable but when differences are afar those considered suitable, remedial action is necessary. The fourth ingredient of control the activator is the remedial measure taken to go back to the system to probable output. The ongoing debate confirms the strong correlation between project control process and project time & cost, therefore, the study hypothesize the following.

H3: *There is likelihood that project control process reduces the project time.*

H4*: There is likelihood that project control process reduces the project cost.*

Change Management: "The prescribed change management procedure comprises the dealing of all officially requested changes and makes sure their effectual execution. As stated before, the early discovered hidden can also be deal in the official process. However, irrational changes may be rejected. Some authors consider change management as part of scope control [23, 24].

The formal change management process has four steps:

- Change requirement: identification and documentation of the proposal; recording the need for change [25]; a review of the requirements for scope/ organizational changes and identification of activities that are affected by changes; and the identification of areas of change [26];
- Change evaluation: assessment of the impact of change on the schedule, scope, budget [27]; rating changes, the establishment of responsible, planning change; evaluation of the benefits and costs of required changes and a change activities proposal;
- Change approval: forwarding the request to the competent people to decide whether to approve or reject the changes;

Realization of change: the change/update of the plan and information share about the change; implementation of the change informing stakeholders about the change and ensuring effective implementation of the change. However, many other authors suggest a relatively similar process [28]. The procedure for managing change should be defined in the contract with the client or the contractors. The change proposal should also include who is expected to pay for the change costs [29-31]. "First, there is an unquestioning acceptance of change as essential to organizational survival", "Second, change is characterized as a threat to organizations" [32]." Third, change is represented as an issue of leadership" [33]. Effective management is critical to any organizations ability to adapt and react. The objective of any change management is to maximize benefits, while minimizing the risk of failure during the change implementation. Consequently the purpose of change management is to take action as an enabler who makes available a method through which the business may rapidly adapt and react to changing conditions exclusive of the negative consequences that are frequently linked with hurried action. Change Management recommends a uniform

method that competently assesses the possible constructive and unhelpful feature of change and permit for the timely treatment of all change-related actions. Second, Change Management ensures that all changes are documented, estimated, correctly planned and accounted for the business has a continuing living narration of change-related tricks. To conclude now, Change Management reduces the disturbance frequently linked with change at all stages. Change management process is comprised of steps that make sure that changes are properly illustrated, sufficient analysis for their impact on the organization, evaluated and consequently in-line with supplementary changes and continuing business activities. Since businesses follow their Change Management processes, in excess of time they inclined to expand a high level of managerial capability in the considerate and management of risk linked with change. A formal Change Management process provides a mechanism and a context through which organizational and individual competencies improve over time, significantly compounding the value on investment that an organization receives from its investment in Change Management [34]. Change management reduces the project costs and time, in order to evaluate this hypothesis, this study formulate the following i.e.,

H5: *There is likelihood that formal change management reduces the project time.*

H6: *There is likelihood that formal change management reduces the project cost.*

Time and Cost: The two fundamental feature of the owner are the time-schedule and budget of every project on the whole construction program. Oversight or improper planning of these two aspects during the pre-construction phase, invariably results into overruns of projects both in terms of time and cost. Subsequently appropriate "risk-management-response and corrective measures" must be suggested in advance to make sure that two vital aspects: time and cost of each project are kept under control. A foremost dilemma with this method as an efficient instrument intended for cost control is that plans frequently engage a lot of significant kinds of work and so as to the integrity of the particular factor selected for evaluating the project progress might well differ with the passage of time. In an endeavor to deal with this occasionally different factors are used at different levels during the project. In addition even though it is probable for this method to show the divergence of the event progress from the plan it do not show the rationale for these divergence. The Construction Industry Institute (CII) established the Project Change Management Research Team to find a method to avoid or minimize delays, inflated cost, general claims and even costly litigation associated with project change. The research team hypothesized that is significant savings in the total installed cost and schedule of any construction project were achievable by improving the management of changes. Access in project cost and delay observed in single project can be reduced if there is moreover a organized method to change efficiently or a organized method to evaluate the confiicts. Any delay to the change will probably add to its cost [35].

Butt *et al*. [36] identified a range of measures that used to assess the success of the common factors in the successful software projects in Pakistan software industry. The survey shows the guidelines for the project managers regarding perceptions from software practitioners. According to Abdolazimian and Mansouri [37, p. 33],

"Business Process Reengineering is a holistic approach that preparing and heading organizations for "change".

Salehi [38] examine four methods of comparing alternative investments (Net Present Value, Rate of Return, Benefit Cost Analysis and Payback Period) are used as criteria in TOPSIS technique to obtain an aggregative assessment of criteria for projects. The results utilized fuzzy theory based-TOPSIS, assessment of projects.

Data Source and Methodology

Research Sample: The population consisted of project managers of KPK in the field of construction. The population selected for this study is project managers of Pakistan. In this study, proportionate sampling has been used. 130 employees were selected on the basis of designation. Primary data was obtained through structured questionnaires. In the questionnaire, there were nineteen question regarding risk management, six for project control, thirteen for change management has five for project time and five question for project cost with an itemized ranking scale of 1 to 5 i.e. from Strongly Disagree to Strongly Agree. Questionnaires were distributed in the organizations according to categories and responses were collected by hand and through post as well. Out of 200 employees, 130 responded back. Industry response rate was (65%) which is good representative of the sample.

Table 1: Proportionate Sampling

Serial	Categories	Firms	Percentages	KPK	Sample	Selected	Sent	received	Response rate
1	CA	158	0.50%	15	0.23%	0	0	0	0%
2	CB	159	0.50%	20	0.31%	0	0	0	0%
3	C1	374	1.20%	110	1.68%	0	0	0	0%
4	C2	311	1.00%	90	1.38%	0	0	0	0%
5	C3	1253	4.10%	200	3.06%	1	5	3	60%
6	C4	2632	8.60%	500	7.65%	4	20	7	35%
7	C5	4000	13.10%	700	10.71%	4	20	30	150%
8	C6	21624	70.90%	5000	76.51%	31	155	90	58%
Total	30511	100%	6535	100%	40	200	130	65%	

Table 2: Reliability Analysis

S.No	Variables	Cronbach's (Alpha)
1	Over all	0.785
2	Risk management	0.748
3	Project control	0.761
4	Change management	0.740
5	Project cost	0.764
6	Project time	0.740

Proportionate Sampling: Proportionate sampling was a sampling strategy (a method for gathering participants for a study) used when the population is composed of several subgroups that are vastly different in number. The number of participants from each subgroup is determined by their number relative to the entire population. Table 1 shows the sampling technique to obtained reasonable size of the population.

In Table 1, firstly, identify the groups to be used for the sub-segments and the known proportion of the population in each group. Multiply these percentages by the total sample size to get the sample for each group. The categories that are selected are CA, CB, C1, C2, C3, C4, C5 and C6 from Pakistan Engineering Council (PEC) construction companies list and then put their numbers against them. Each company number is divided by total number of construction companies to get percentages. Construction companies of KPK are enlisted in column 6. Again by dividing number of construction companies in each category percentages are obtained in column of sample. Neglecting CA, CB, C1, C2, companies as their ratio of occurrence was very lowand selected C3, C4, C5 and C6 categories companies only. Total 200 Questionnaire were sent to C3, C4, C5 and C6 categories companies and 130 questionnaires were received.

Measures and Methods: To test the hypothesis, acquired data was analyzed with a multivariate analysis, specifically by determining the correlation and regression. With a correlation analysis, we mostly verified whether the existence of particular variables decreases (or increases) the impact of changes on effective project implementation. By calculating a linear regression of individual variables we found how much they impact on the efficient project implementation. To determine the internal consistency or average correlation of items in a survey instrument to gauge its reliability Cronbach's (alpha) is commonly used. For this purpose reliability analysis is performed. A standardized questionnaire was taken from relevant literature that attempted to gather information regarding all the variables. Table 2 shows the reliability analysis of the questionnaires.

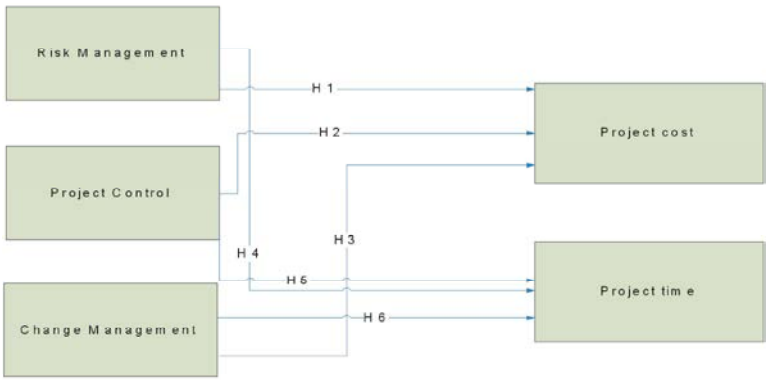

Fig. 1: Conceptual framework of the Study
Source: Self extract.

In this study, there are three independent variables and two dependent variables based on the literature review which used to calculate the relationship between independent variables and their relationship with dependent variables. Figure 1 shows the conceptual framework of the study.

RESULTS AND DISCUSSION

Correlation Analysis: Correlation is a technique that can show whether and how strongly variables are related. Table 3 shows the correlation matrix for the variables.

The above correlation table shows that risk management has significant impact on project control, project time, Project cost and change management at $p<0.013$, $p< 0.027$, $p< 0.002$ and $p<0.044$ respectively. Risk management and project control has shown significant correlation valuesat 0.217, project time at 0.195, project cost at-0.266 and change management at -0.177.Project control has significant impact on project time and project cost at $p< 0.001$ and$p< 0.002$. Project control is insignificant at0.921 because it is greater than $p>0.05$. Project control, project time, project cost and change management are correlated as 0.297, -0.272 and 0.009.Project time has significant impact on project cost and change management at $p< 0.000$ and have moderate inverse relationship project on cost at -0.308 and strong inverse relationship on change at -0.564 at 99% confidence interval.Project cost has significant impact on change management at 0.010 and inversely correlated with change management at -0.224.Risk management, project control and project time are positively correlated, but risk management is negatively correlated to project cost and change management. Project control is positively associated to project risk, project time, change management and negatively with project cost.

Project time is positively correlated to risk management and project control, inverse relationship with project cost and change management. Project cost has inverse relationship with risk management, project control, change management and moderate inverse relation with project time.Change management has inverse relationship with risk management, project cost, & project time, while, it has direct relationship with project control.The results of correlation matrix concludes that risk management, project control and project time are positively related and somewhat correlated with strength ranging from 0.297 to 0.195 and are negatively correlated with cost and change. To determine the functional relationship between the variables, Table 4 shows the multiple regression analysis between dependent and independent variables.

The empirical results, given in Table 4, appear to be very good in terms of the usual diagnostic statistics. The value of R^2 adjusted indicates that 54.7% variation in dependent variable has been explained by variations in independent variables. F-value is higher than its critical value suggesting a good overall significance of the estimated model. Therefore, fitness of the model is acceptable empirically. The result suggests that all variables have a correlation proving the hypothesis. In addition, variance inflation (VIF) shows that there is no multicollinearity issue in the model, as the VIF value is less than 10.

The results from Table 4 show that there is a negative relationship between risk management and project cost beta value of risk management is -0.425, which indicates

Table 3: Correlation Analysis

		Risk	control	Time	Cost	Change
Risk	Pearson Correlation	1	.217*	.195*	-.266**	-.177*
	Sig. (2-tailed)		.013	.027	.002	.044
	N		130	130	130	130
Control	Pearson Correlation		1	.297**	-.272**	.009
	Sig. (2-tailed)			.001	.002	.921
	N			130	130	130
Time	Pearson Correlation			1	-.308**	-.564**
	Sig. (2-tailed)				.000	.000
	N				130	130
Cost	Pearson Correlation				1	-.224*
	Sig. (2-tailed)					.010
	N					130
Change	Pearson Correlation					1
	Sig. (2-tailed)					
	N					

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4: Regression Analysis with Project Cost

Variables	Coefficient values	Prob. Values	VIF
Constant	7.255*	0.000	1.212
Risk Management	-0.425*	0.002	1.625
Project control	-0.211*	0.010	2.012
Change Management	-0.361*	0.001	2.145
Diagnostic Tests: R-square		0.647	
Adjusted R-square		0.547	
F-statistics (prob.value)		9.766* (0.000)	

Note: * represents significant at 99 percent confidence interval. Dependent variable is project cost.

Table 5: Regression Analysis with Project Time

Variables	Coefficient values	Prob. Values	VIF
Constant	4.743*	0.000	2.021
Risk Management	0.049	0.661	2.189
Project control	0.292*	0.000	3.524
Change Management	-0.743*	0.000	1.025
Diagnostic Tests: R-square		0.608	
Adjusted R-square		0.596	
F-statistics (prob.value)		29.153* (0.000)	

Note: * represents significant at 99 percent confidence interval. Dependent variable is project time.

inverse relationship between variables, p-value 0.002 depicts significance of relationship among variables. Risk management process negatively related with project cost, which indicates that efficient use of risk management will reduce the cost incurred on the project, so H1 is accepted. Project control have significant inverse relationship with coefficient value -0.211 and p-value 0.010 thus H2 is accepted which shows that effective use of project control will lessen the project cost. Change management is inversely related with project cost whereas beta value is -0.361 and p-value 0.001 that depicts significance of relationship among variables thus H3 is accepted which shows that efficient change management will reduce project cost. Table 5 further link the project related variables i.e., risk, control and changes variables with the project time.

The value of R^2 adjusted indicates that 59.6% variation in dependent variable has been explained by variations in independent variables. F-value is higher than its critical value suggesting a good overall significance of the estimated model. Therefore, fitness of the model is acceptable empirically. On the basis of these results, one may infer mixed results with project cost and project time. In addition, variance inflation (VIF) shows that there is no multicollinearity issue in the model, as the VIF value is less than 10.

The results show that risk management is insignificant 0.661 which shows that there is no relationship between risk management and project time; thus our fourth hypothesis i.e H4 is rejected in other. Project control have significant direct relationship with coefficient value 0.292 and p-value 0.000 which indicate significance of relationship but the direction of the relationship is opposite to the stated hypothesis, thus H5 is rejected. Change management is inversely related with project time whereas beta value is -0.743 and p value 0.000 which depicts significance of relationship among variables thus H6 is accepted which shows that efficient change management will reduce project time.

CONCLUSION

Changes to the objectives and scope, as well as a changed way of implementation, are some of the more important risk factors of a project. Since many changes can be expected, they can be managed by using risk management tools. The probability of change can be reduced by taking preventive measures, while the negative impact of changes can be reduced by corrective actions planned to be implemented in the event that a change occurs. The expectation of change at the same time provides intensive and more focused control which ensures the early detection of change and a rapid response. Project control is the process of monitoring, evaluating and comparing the planned results with the actual results to determine the progress made towards the project's cost, schedule and technical performance objectives. The last step of control is the definition of corrective actions in the event of deviations from the project plan. By implementing these actions, the project team can reduce or eliminate deviations. As the causes of variations can also include changes, the more frequent monitoring of the performance provides the earlier detection of changes, especially since a control can detect hidden changes, errors and problems before they cause any deviations. More frequent project control measures reduce delays and costs due to changes. Detected changes have to be analysed and after that they have to be completed or rejected.

Analysis showed a positive relationship between risk management, project control and project time, whereas negative relationship with change management and project cost. Results are showing the impact of the independent variables that are risk management, project control, change management, project time and project cost. Organizational culture in Pakistan is not yet mature enough to take into account the rapidly changing trends in management. Change management is a relatively new concept& in the field of project management is even

less understood. The results in this study show high level of significance with risk management, project control and change management on project cost. Risk management has insignificant impact on project time. Change management and project control has significant impact on project time. The result shown above provides a solution to the project managers to control the cost and time of projects in Pakistan by providing systematic way of handling projects within the organization. As all the hypothesis of the study were supported by previous literature. Negative relationship was found between risk management, project control and change management with project cost while project control and risk management have direct relationship with project time. Change management is also inversely related to project time which is discussed in detail. There is no relationship between risk management and project cost, which doesnot supports fourth hypotheses, therefore it is rejected. The reason behind this is the time interval between risk identification and implementation of corrective action is usually long in KPK. So results are opposite from previous study. Project control has direct relationship with project time and is significant, so hypothesis is rejected. In this case, results are opposite from the previous study because in KPK project control process takes longer time due to which project time is increased.

Implications: On the basis of these results, following implications of the study could be proposed

- Risk management can reduce the project cost but no evidence of its relationship with time. So for effective project management risk management tools must be incorporated at planning phase to reduce the project cost.
- Implementation of Project control process can reduce project cost. Effective project managers must incorporate project control process and planning for better performance of the project.
- Study confirms that change management can reduce project time and project cost so companies must adopt the culture which is suitable for change management.

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