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Identification and Prioritization of CSFS and Perception of the Stake Holders for Fast Track Construction Projects in Pakistan

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Abstract
Construction industry is characterized by its unpredictability in terms of time and cost. Worldwide 85% of the projects suffer time overrun resulting in cost increase. Project management being a neglected aspect in Pakistan results in project time overrun. Many scheduling techniques are employed to regain the lost schedule, fast tracking is one such technique. Fast tracking is overlapping the project activities in order to reduce project duration with increased activity and project cost. Globally fast tracking has seen ages of practical implementation since 1960s. However being a newer trend in Pakistan, it is yet to witness maturity. Fast track projects opt for time and quality over cost and in fast track projects we accept the tradeoff between the high cost of buying time while maintaining quality. The main idea behind fast tracking is to overlap the activities which otherwise are executed in sequence. Particularly the emphasis is kept on overlapping design and the construction activities. After an extensive literature review a preliminary questionnaire containing 93 success factors was used for the pilot survey. After the pilot survey full scale survey questionnaire was prepared containing 45 success factors. The questionnaires were sent to a sample size of 63 comprising of the contractors, consultants and the construction clients. The data collected was analyzed using PASW-18 and MS Excel. After conducting the statistical tests the success factors were ranked in order of importance using RII and mean values. Keeping the mean value as the yard stick, success factors with mean value of 4 and above were identified and prioritized as the CSFs (Critical Success Factors). Similarly the stakeholder's perception on the CSFs was also evaluated. At the end conclusions and recommendations were formulated. Keeping in view the research parameters, the research's contribution is twofold, one to the local CI (Construction Industry) and other to R&D (Research and Development) community.
Keywords: Fast Tracking, Construction Industry, Critical Success Factors, Stakeholder's Perception

1. Introduction

Construction Industry plays a key role in the development of any country. There is a French dictum "where the construction industry prospers, everything prospers". The primary aim of any construction project is to achieve success. In construction sector, despite having the success concept explored since long still there is no unique definition for a successful project. Project performance in terms of time, cost and quality are currently used for measuring its success (Moura et al. 2007) also known as the Iron Triangle. A construction project has a wide range of stakeholders amongst which the most important are the Contractors, Consultants and the Clients.

1.1 Pakistan's Perspective

Pakistan in context of a developing country has a great dependency upon the quantum and frequency of construction projects. Over the past few decades a number of construction projects such as dams, canals, power plants, roads, highways, bridges, flyovers, skyscrapers etc have been completed in Pakistan. For instance, for 43 years from 1962 till 2005, Habib Bank Plaza (101m) was the tallest building in Pakistan but from 2005 till 2012, 10 sky scrapers taller than Habib Bank Plaza have been completed and 11 more will be completed by 2019, showing the boom in the construction industry over the recent decade. With this heavy pace comes the requirement of completing a project on time. Similarly over the past decade the Punjab Government in particular has highly emphasized on fast track construction.

1.2 Problem Statement

In the recent years with a boom in construction industry in Pakistan the clients and the local construction industry has shifted the emphasis towards time saving on construction projects. Following time dependent scenarios prevail in Pakistan's CI.

- Time Overruns. A large number of projects globally and in Pakistan particularly suffer time overruns, which mostly results in cost overruns and sometimes compromising quality.
- Time Constraints. Approximately 70% of the construction projects in Pakistan are government sponsored involving public money. In order to gain political credits to their names governments are interested in completing the projects in their tenure, urging upon accelerated project development to which one of the solutions is overlapping the sequential activities requiring construction management professionalism, unfortunately lacking in Pakistan's CI.

1.3 Research Objectives

- To identify and prioritize the CSFs for fast track construction projects in Pakistan.
- To evaluate the perception of construction stakeholders on fast track projects in Pakistan.

1.4 Scope of Research

The research covers the main three stakeholders of construction industry i.e. the Clients, the Contractors and the Consultants. Presently the construction companies working on different construction projects are registered with Pakistan Engineering Council (PEC) in CA, CB, C1, C2, C3, C4, C5 and C6 categories. Keeping in view the limited scope of Construction Management in Pakistan's construction industry, the scope of the research has been kept limited to the following.

- Contractors registered with PEC in CA, CB & C1 categories only.
- All the Consultants registered with PEC
- Construction Clients enlisted with PPRA (Pakistan Procurement Regulatory Authority)

2. Literature Review

PMI gives a simple definition of fast tracking "the process of overlapping sequential activities or phases in parallel to compress the project schedule (PMI 2004). The Fast-Track Manual's broad definition (Eastham 2002) considers fast-tracking as the "reduction of the schedule to the minimum practicable is the principal driving force for one or more stages of the project". The Project Management Body of Knowledge (PMBOK) identifies fast-tracking as a schedule compression technique. In fast-tracking, phases or activities that normally would be done in sequence are performed in parallel; in other words they are overlapped. Overlapping can result in rework and increased risk. This approach can require work to be performed without complete detailed information; it results in trading cost for time, and increases the risk of achieving the shortened project schedule (PMBOK 2008).

According to Saleh 2010, the term fast-track in the construction world means starting the construction process while the design is still under development. Under normal circumstances (i.e., the traditional way), the design must be complete before construction can start. In some situations, time may be so tight that the owner or project management team decides to ''fast-track'' the project. In this case, the project is divided into several phases, and the construction of a phase proceeds after the design of that phase is complete, while the design of latter phases may not yet completed, as shown in figure 1

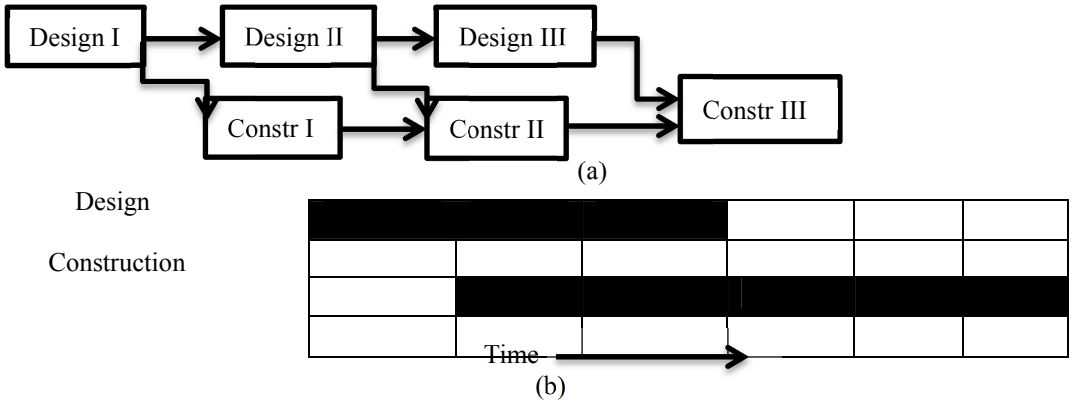


Figure 1 (a) Stair-type diagram and (b) bar chart for a fast-track project

Fast tracking in different literatures is also known as concurrent engineering, phased construction, simultaneous engineering, parallel engineering, flash tracking and agile project management. Fast track system is

a management technique that is being practiced within construction industry with the objective to reduce overall construction time (winner et al 1996). Williams (1995) suggest that fast track project should take less than 70% of the time it takes to undertake traditional projects. He further stated that for a fast track technique to be successful better communication, trust and demand for teamwork are essential. All participants, clients, contractors, engineers, suppliers must work together, need to be thoroughly familiar with the scope of work. De La Garza et al. (1994) advocated that Fast Tracking has the potential to "re-optimize, re-energize, and refuel" construction industry. Pawar et al (2013) the project duration shortening usually increases the complexity of the project creating real challenges for the project team. The main challenges occur in the interconnection between the project's phases and the reactions to the changes during the project period. As a result, several management approaches have been initiated to achieve accelerated completion. Hamodi et al (2011) despite the different definitions, fast-track projects are similar to conventional projects in terms of predictability importance to success. In order to consider a fast track project as a successful project, the project needs to be predictable. Following success factors have been identified from already published literature.

Sr No	Success Factors
1	Effect of proper coordination and planning on reducing the modification rate
2	Effect of reducing/ removing resource constraints on fast tracking
3	Effect of contractor participating in the design phase
4	Impact of Organizational restructuring before commencing fast tracking
5	Effect of using prefabricated materials for time saving on fast track projects
6	The effect of maximizing information exchange between an upstream task and a downstream task
7	Effect of Quick approval of design drawings
8	Impact of changes in the economic and political environments
9	Effect of predictability on fast track (in terms of cost variance, time variance and quality variance)
10	Effect of removing information dependencies from design process allowing sequential activities to be overlapped to reduce the project schedule
11	Effect of lack of top management commitment
12	Effect of improper material handling and material management on sites
13	Effect of locating design staff at the construction site
14	Effect of misinterpretation of client's requirements
15	Effect of inviting construction expertise early at the design stage
16	Effect of Lack of planning and inspection of project by the client
17	Effect of Adequate pre-construction planning
18	Effect of inconsistencies among drawings and Specifications
19	Minimum number of repetitions in design process to find the optimal solution for a particular activity
20	Effect of expansion of the scope
21	Effect of unfavorable site conditions
22	Effect of minimizing mid-stream design changes
23	Effect of inclusion of the team members at various stages of design development
24	Effect of encouraging everyone on the project team to present his ideas
25	Effect of Inadequate design time
26	Effect of incorrect material takeoff from drawings and designs
27	Effect of selecting an appropriate contractor for fast tracking
28	Effect of lack of coordination among specialists
29	Effect of taking greater risks for many activities even if not on the critical path
30	Effect of incomplete or contradiction in information
31	Effect of project size and complexity on fast tracking success
32	Impact of Design changes occurring in the later phases of project
33	Effect of commencing with the project without knowing the final project cost
34	Effect of excessive overlapping of project phases
35	Introducing incentive schemes for project team to motivate them to successfully complete the project
36	Effect of errors in design assumptions, concepts and calculations
37	Effect of shortages of construction materials
38	Effect of poor project definition
39	Effect of engineering and design changes
40	The effect of clear chain of command and everyone in the chain knowing his job
41	Business goals dominate not methodology
42	Effect of incomplete design package in bidding stage
43	Impact of changes in government laws, regulations and construction standards
44	Effect of Inadequate supply of workforce
45	Business goals are clear and they are everyone’s business

3. Methodology

Figure 2 shows the methodology used for this research. Data was collected using 5 point Likert scale. The data type was ordinal. Respondent’s perception ranged from Very High to Very Low with 0 indicating NA (not applicable) or no experience.

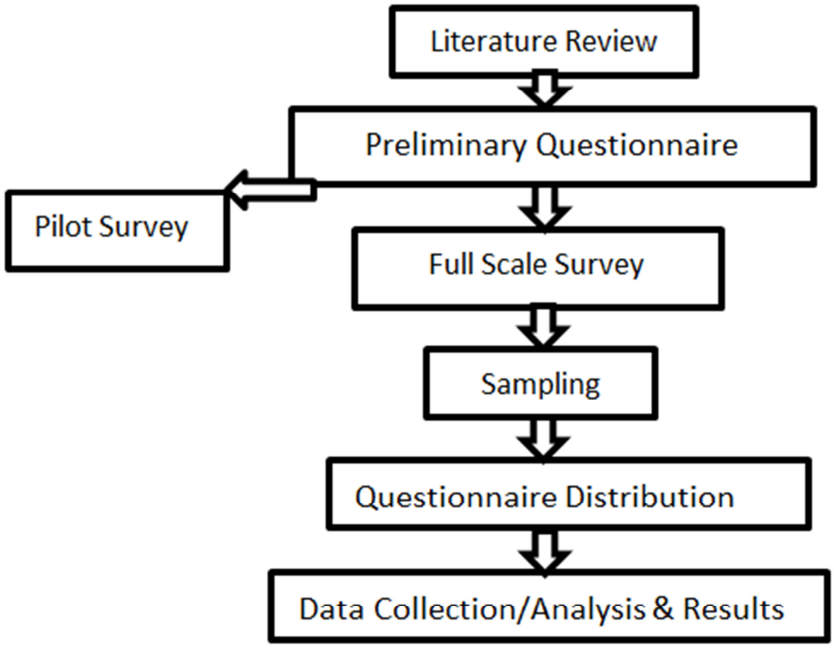


Figure 2 Schematic Layout of Research Methodology

3.1 Pilot Survey

For the purpose of pilot survey a sample of 12 respondents comprising of 5 contractors, 4 consultants and 3 clients was used. Moreover unstructured interviews were also conducted to look for improvements in the questionnaire.

3.2 Modifications after the Pilot Survey

Following changes in the preliminary questionnaire were made after the pilot survey.

- The number of success factors was reduced from 93 to 45.
- Initially the questionnaires were supposed to go to all the contractors registered with PEC but keeping in view the lack of understanding on fast tracking only category CA, CB & C1 contractors were selected for the full scale survey.
- The survey revealed that even in reputable firms very less individuals were clear on fast tracking therefore a paragraph on fast tracking was included in the questionnaires.
- Along with the 5 point Likert scale, 0 for NA or No Experience was added keeping in view the low level of understanding on fast tracking.
- Success factors were sub categorized under 5 main headings indicating different project phases and processes.

3.3 Sampling

For the purpose of sampling Dillman's Table shown below was used. Till January 2011, 850 contractors in CA, CB and C1 categories and 1450 consultants were registered with PEC. Similarly 1500 construction clients were enrolled with PPRA. Hence the population size for this research was 3800. Pilot survey gave a good idea of the respondent's perception therefore 80/20 split with 95% confidence interval and 10% sampling error has been used. Resultantly a sample size of 61 was obtained.

Sample Size for 95% Confidence Interval						
Population Size	± 10% Sampling Error		± 5% Sampling Error		± 3% Sampling Error	
	50/50 Split	80/20 Split	50/50 Split	80/20 Split	50/50 Split	80/20 Split
100	49	38	80	71	92	87
200	65	47	132	111	169	155
400	78	53	196	153	291	253
600	83	56	234	175	384	320
800	86	57	260	188	458	369
1000	88	58	278	198	517	406
2000	92	60	322	219	696	509
4000	94	61	351	232	843	584
6000	95	61	361	236	906	613
8000	95	61	367	239	942	629
10000	95	61	370	240	965	640
20000	96	61	377	243	1013	661
40000	96	61	381	244	1040	672
100000	96	61	383	245	1056	679
1000000	96	61	384	246	1066	683
10000000	96	61	384	246	1067	683

3.4 Data Collection

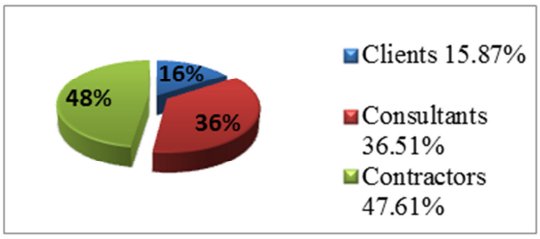
Out of 170 questionnaires sent to five major cities of Pakistan (Lahore, Karachi, Islamabad/Rawalpindi, Peshawar and Quetta), a total of 70 questionnaires were received. Response rate was 41.2% which is considered acceptable in questionnaire based management research. After sifting and rearranging the data, 7 questionnaires being incomplete were excluded from the analysis. Out 70 questionnaires 57 were received through Email, 10 were collected personally by hand and 3 by post. 63 questionnaires were used for analysis which is good as the minimum sample size obtained was 61.

4. Data Analysis and Results

The analysis was carried out using MS Excel and PASW-18. The CSFs were identified using RII and mean values. The analysis has been carried out in two parts. The Descriptive analysis and the Inferential analysis.

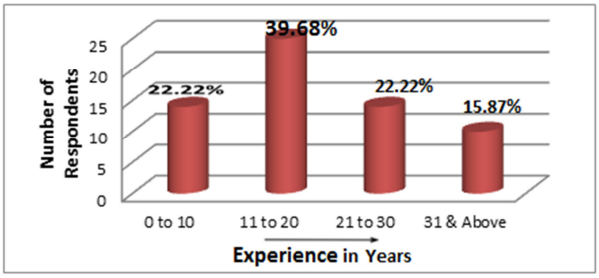
4.1 Descriptive Analysis

4.1.1 Respondent's Distribution



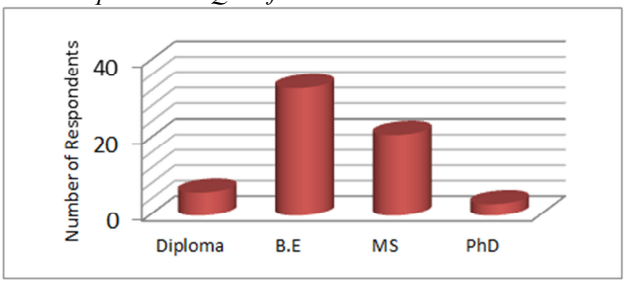
Respondents	Questionnaires Returned	%age	Cum %age
Clients	10	15.87%	15.87%
Consultants	23	36.50%	52.37%
Contractors	30	47.62%	100%
Total	63	100%	

4.1.2 Respondent's Experience



Experience	Frequency	%age	Cum %age
0 -10 Yrs	14	22.22%	22.22%
11-20 Yrs	25	39.68%	61.90%
21-30 Yrs	14	22.22%	84.12%
31& Above	10	15.87%	100%
Total	63	100%	

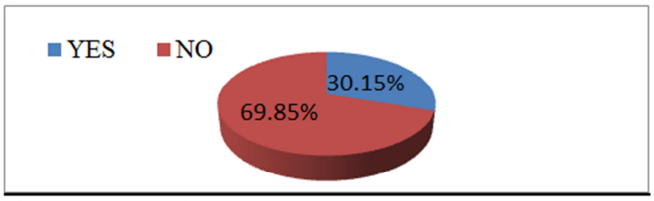
4.1.3 Respondent's Qualification



Qualification	Frequency	%age	Cum %age
Diploma	06	9.52%	9.52%
B.E	33	52.40%	61.92%
M.S	21	33.33%	95.25%
Ph.D	03	4.76%	100%
Total	63	100%	

4.1.4 Respondent's Exposure to Fast Tracking

The respondents were asked to give an input on whether they have ever been a part of a fast track project or not. The research shows that 30.15% of the respondents amongst the sample had an exposure to fast track project which is almost similar to the research done by Farooqi et al.2008 on the percentage of projects delivered through different project delivery methods in Pakistan. Hence validating the results of this research.



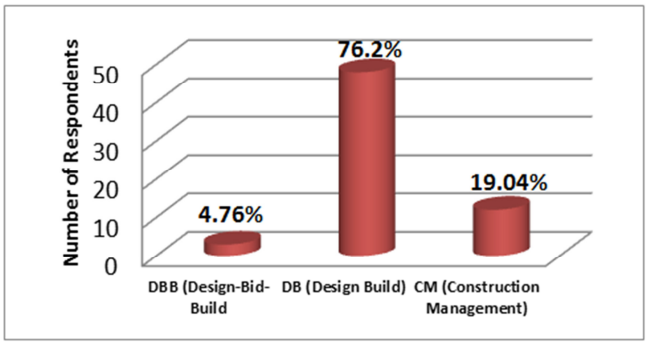
Those who have been part of a fast track project	Frequency	%age Yes/ No
YES	19	30.15%
NO	44	69.85%
Total	63	100%

Question No.	Delivery System Component	Percentage Projects Delivered
1	Project deliver method (Design-Bid-Build)	100%
2	Project procurement method? (Low bid)	100%
3	Project bidding strategy (Open competitive bidding)	100%
4	Type of contract-	
	Fixed unit price	78%
	Fixed lump-sum price	12%
	Fixed price plus escalation	8%
5	Project execution approach-	
	Normal track	68%
	Fast track (Multi prime contracting)	32%

(Source: Farooqui et. al, 2008)

4.1.5 Most Suited Project Procurement Method

The respondents were also asked to tell which project procurement method they consider to be the most suitable for fast track construction. The input by the respondents is in good agreement with the already accepted and published studies.



Project Delivery Systems	Respondents	%age
DBB	03	4.76%
DB	48	76.2%
CM	12	19.04%
Total	63	100%

4.2 Inferential Statistical Analysis

Inferential analysis has been carried out using PASW-18 and MS Excel.

4.2.1 Data Reliability Test

Cronbach's Coefficient Alpha method is the most common measure of internal consistency (reliability). It is commonly used to check the reliability of scale when questions are asked on Likert scale. If Cronbach's Coefficient Alpha value is higher than 0.7, this means that the data is highly reliable for analysis whereas if its

value is higher than 0.9, this means that the data is excellent for further analysis (Li, 2007). The Cronbach's Alpha value for the collected data is 0.704, which shows that the data is highly reliable for further analysis.

4.2.2 Normality Test

As the sample size is less than 2000 therefore in order to access the normality of the data collected Shapiro Wilk test has been conducted. It is performed to know whether the data is normally distributed or not, i.e. is the data parametric or non-parametric. The Null hypothesis is that the data is normally distributed and the Alternate hypothesis is that the data is not normally distributed. The Null Hypothesis is rejected it the Sig value is below 0.05 and accepted it the Sig value is above 0.05. As the Sig value is less than 0.05 therefore we reject the Null Hypothesis and accept the Alternate Hypothesis which is that the data is non-parametric and non-parametric tests will be used for further analysis.

4.2.3 Kruskal Wallis Test

One of the objectives of this research was to check the stakeholder's perception about the success factors affecting fast track projects. As the data being used is non-parametric therefore in order to judge the perception (degree of agreement) among the stakeholders (Clients, Consultants and Contractors) Kruskal Wallis test has been used. The Null hypothesis is that there is no difference between the mean values of the stakeholder's perception. Alternative hypothesis is that the mean values are different.

H_0; $\mu_{Clients} = \mu_{Consultants} = \mu_{Contractors}$ H_1: $\mu_{Clients} \neq \mu_{Consultants} \neq \mu_{Contractors}$

Since the significance value is 0.761> 0.05 therefore it is concluded that all the three stakeholders have the same perception about success factors contribution towards fast track success. The table below confirms the results of the Kruskal Wallis test by separately enlisting the three stakeholder's perception. Success factors having mean values 4 and above have been enlisted. The table clearly shows that out of 45 success factors the three stakeholders have ranked them almost in the similar rank. Of course the entire 63 respondent's cannot have cent percent similar ranking.

Contractors	Consultants	Clients
Contractor participating in the design phase	Proper coordination and planning on reducing the modification rate	Organizational restructuring before commencing fast tracking
Proper coordination and planning on reducing the modification rate	Organizational restructuring before commencing fast tracking	Reducing/ removing resource constraints on fast tracking
Using prefabricated materials for time saving on fast track projects	Reducing/ removing resource constraints on fast tracking	Proper coordination and planning on reducing the modification rate
Reducing/ removing resource constraints on fast tracking	Changes in the economic and political environments	Changes in the economic and political environments
Organizational restructuring before commencing fast tracking	Quick approval of design drawings	Maximizing information exchange between an upstream task and a downstream task
Predictability on fast track project (in terms of cost variance, time variance and quality variance)	Maximizing information exchange between an upstream task and a downstream task	Lack of top management commitment
Quick approval of design drawings	Contractor participating in the design phase	Contractor participating in the design phase
Removing information dependencies from design process allowing sequential activities to be overlapped to reduce the project schedule	Removing information dependencies from design process allowing sequential activities to be overlapped to reduce the project schedule	Quick approval of design drawings
Maximizing information exchange between an upstream task and a downstream task	Using prefabricated materials for time saving on fast track projects	
Changes in the economic and political environments	Proper coordination and planning on reducing the modification rate	

4.2.4 RII and Mean

Sr No	Factors	Response by the respondents						Mean	RII	Rank
		5	4	3	2	1	0			
1	Effect of proper coordination and planning on reducing the modification rate	34	23	4	1	1	-	4.39	0.8793	1
2	Effect of reducing/ removing resource constraints on fast tracking	34	20	8	1	-	-	4.38	0.8761	2
3	Effect of contractor participating in the design phase	17	37	6	2	1	-	4.36	0.873	3
4	Impact of Organizational restructuring before commencing fast tracking	30	28	3	1	1	-	4.34	0.8698	4
5	Effect of using prefabricated materials for time saving on fast track projects	28	23	10	1	1	-	4.20	0.8412	5
6	The effect of maximizing information exchange between an upstream task and a downstream task	21	33	8	1	-	-	4.17	0.8349	6
7	Effect of Quick approval of design drawings	26	23	12	2	-	-	4.16	0.8317	7
8	Impact of changes in the economic and political environments	18	37	7	1	-	-	4.14	0.8285	8
9	Effect of predictability on fast track project (in terms of cost variance, time variance and quality variance)	33	16	6	6	2	-	4.14	0.8285	9
10	Effect of removing information dependencies from design process allowing sequential activities to be overlapped to reduce the project schedule	17	37	6	2	1	-	4.063	0.8126	10
11	Effect of lack of top management commitment	18	18	22	2	3	-	3.73	0.746	11
12	Effect of improper material handling and material management on sites	6	28	25	2	2	-	3.53	0.7079	12
13	Effect of locating design staff at the construction site	2	33	20	6	2	-	3.42	0.6857	13
14	Effect of misinterpretation of client's requirements	4	33	16	5	5	-	3.41	0.6825	14
15	Effect of inviting construction expertise early at the design stage	4	27	22	8	2	-	3.36	0.673	15
16	Effect of Lack of planning and inspection of project by the client	5	25	23	7	3	-	3.34	0.6698	16
17	Effect of Adequate pre-construction planning	3	22	32	5	1	-	3.33	0.6666	17
18	Effect of inconsistencies among drawings and Specifications	3	24	24	11	1	-	3.26	0.6539	18
19	Effect of Minimum number of repetitions in design process to find the optimal solution for a particular activity	3	23	25	11	1	-	3.25	0.6507	19
20	Effect of expansion of the scope	5	24	20	8	5	1	3.20	0.6412	20
21	Effect of unfavorable site conditions	4	24	19	10	6	-	3.15	0.6317	21
22	Effect of minimizing mid-stream design changes	3	18	28	8	6	-	3.06	0.6126	22
23	Effect of inclusion of the team members at various stages of design development	1	20	24	15	3	-	3.01	0.6031	23
24	Effect of encouraging everyone on the project team to present his ideas	3	17	24	15	4	-	3	0.6	24
25	Effect of Inadequate design time	-	14	34	13	2	-	2.954	0.5904	25
26	Effect of incorrect material takeoff from drawings and designs	1	7	41	12	2	-	2.9	0.5777	26
27	Effect of selecting an appropriate contractor for fast tracking	4	14	18	22	5	-	2.84	0.5682	27
28	Effect of lack of coordination among specialists	1	9	33	17	3	-	2.81	0.5619	28
29	Effect of taking greater risks for many activities even if not on the critical path	8	8	15	23	9	-	2.73	0.546	29
30	Effect of incomplete or contradiction in information	-	8	33	14	8	-	2.65	0.5301	30
31	Effect of project size and complexity on fast tracking success	-	14	19	24	6	-	2.65	0.5301	31
32	Impact of Design changes occurring in the later phases of project	13	10	4	13	23	-	2.63	0.5269	32
33	Effect of commencing with the project without knowing the final project cost	1	13	19	22	8	-	2.63	0.5269	33
34	Effect of excessive overlapping of project phases	5	6	19	23	10	-	2.57	0.5142	34
35	Impact of introducing incentive schemes for project team for motivating them to successfully complete the project	2	10	13	20	18	-	2.33	0.4666	35
36	Effect of errors in design assumptions, concepts and calculations	1	9	12	25	16	-	2.27	0.4539	36
37	Effect of shortages of construction materials	3	4	13	30	13	-	2.27	0.4539	37
38	Effect of poor project definition	3	13	7	13	26	1	2.22	0.444	38
39	Effect of engineering and design changes	4	7	10	20	21	1	2.21	0.441	39
40	The effect of clear chain of command and everyone in the chain knowing his job	1	7	14	20	21	-	2.15	0.43	40
41	Business goals dominate not methodology	2	8	16	17	9	1	2.11	0.4222	41
42	Effect of incomplete design package in bidding stage	2	6	10	27	14	4	2.09	0.419	42
43	Impact of changes in govt laws, regulations and construction stds	2	3	11	28	19	-	2.06	0.4126	43
44	Effect of Inadequate supply of workforce	1	3	17	19	23	-	2.04	0.4095	44
45	Business goals are clear and they are everyone's business	1	9	5	13	26	9	1.71	0.34	45

4.3 Results

Another objective of this research was to identify and prioritize the CSFs for fast track projects in Pakistan for which the success factors have been ranked in order of importance using RII and the ones having mean values 4

and above have been identified and prioritized as critical success factors (CSFs).

4.3.1 CSFs

- *Proper coordination and planning on reducing the modification rate*
- *Reducing/ removing resource constraints on fast tracking*
- *Contractor participating in the design phase*
- *Organizational restructuring before commencing fast tracking*
- *Using prefabricated materials for time saving on fast track projects*
- *Maximizing information exchange between an upstream task and a downstream task*
- *Quick approval of design drawings*
- *Changes in the economic and political environments*
- *Predictability of fast track project (in terms of cost variance, time variance and quality variance)*
- *Removing information dependencies from design process allowing sequential activities to be overlapped to reduce the project schedule*

5. Conclusion and Recommendations

5.1 Conclusions

- Fast tracking is a project time saving approach which when lacking coordination, Planning and management can jeopardize the project.
- Being inherently risky reworks, change orders, deletions and legal issues is the downside of fast tracking whereas upside is time saving.
- One of the reasons of fast tracking downside is the unavailability of any contractual framework which specifically deals with fast track projects.
- At national level and at almost all firms construction management department is the need of the hour which they presently lack.

5.2 Recommendations

- *A fast tracked project must be properly planned, well-coordinated and managed and must not have resource constraints to ensure success.*
- *Any firm which is approved fast track status must go through organizational restructuring and it is important to grade its need, importance and constructability keeping in view the eco and political environment..*
- *It is strongly recommended to establish a department or a contractual framework which specifically deals with fast track projects.*

5.3 Future Recommendations

- This research has used samples from the contractors, clients and consultants group of respondents. It is recommended that further research be made to include the respondents from other key team members such as the key suppliers, fabricators specialist contractors etc to assess the requirement of their participation in the collaborative teamwork environment such as fast tracking.
- Further research is required to be carried out as fast-track projects can be more successful when relational approaches such as integrated or partnering project delivery methods are used, because relational arrangements are more flexible to deal with the complexity of the fast-track projects and provide required collaborative atmosphere in this approach.
- By involving project management prof as independent third party in the project, the stakeholders would experience better project coordination and progress on fast tracking.

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