

Integrated Influential Factors of Internal Stakeholder that Negatively Affecting Project Successful Completion in Yemen

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Abstract: Development construction projects in Yemen are encountering a huge delays in time, cost invade, surrendered and disappointment. Because of an emotional movement in the limit and volume of the Yemeni development part in the course of the most recent decade, the need of a deliberate investigation of the reasons that adversely influencing negatively the project successful completion and building up an unmistakable comprehension among the stakeholder experts is profoundly urgent. The fundamental objective of this study is to recognize and rank the causes that contrarily influencing the project successful completion in Yemen. Utilizing a chose set of 55 qualities, this exploration initially distinguished the key elements affecting project completion in Yemen development industry. A survey has framed the premise of this examination and dispersed to proprietor, advisor and temporary worker. The outcome covers that the 10 major delay factors including money cash flow and financial difficulties faced by contractors, conflict between owners and other parties, delay in progress payment by owner, poor project management, slow decision from owner, escalation of prices of materials, lack of contractor experience, design errors made by designers, shortages of materials and poor site management and supervision. These findings are expected to be significant contributions to Yemen construction industry in controlling the time and cost overruns in construction. The effect of (IIF) is negatively influences to project successful completion regarding to time overrun, cost overrun, negatively affect to satisfaction of the stakeholder, negatively affect to technical specification and negatively affecting to fulfillment all meeting all the project objectives/requirements. These findings are required to be noteworthy commitments to Yemen development industry in controlling the time and cost invades in development.

Key words: Project success, integrated factors, influential factor, development, commitments, Yemen

INTRODUCTION

Accomplishment in development projects is reliant on the compelling association of numerous, particular groups, each of which brings its own capacity, experience, information and ability towards finishing the joint task, yet which additionally bring their own targets, objectives and administration styles which may not be completely complementary (Doloi, 2012). As indicated by Doloi *et al.* (2012), development venture achievement relies on upon the multi-firm venture associations included cooperating attractively. The development division is a vital segment for the improvement and financial development of Yemen which is a creating nation (Sultan, 2005; Sabahi *et al.*, 2014). The construction projects in Yemen represents the fourth largest source of labor jobs in the country, about

9-10% of the working population and the average yearly growth rate of the sector is about 5.4%, effectively contributing to the economic growth of Yemen (Ahmad *et al.*, 2013). With the comparatively large volume of investments currently in this sector as well as a probable increment in Foreign funding from World Bank and other donor agencies for developmental projects, the demand for services in this sector is bonded to increase steadily (Ahmad *et al.*, 2014).

Accomplishing construction projects within the time specified is seldom in Yemen. The funds allocated for the projects are not properly utilized as well (Ahmad *et al.*, 2013). Therefore, there is the need to identify the factors influencing construction projects successful completion among internal stakeholder in Yemen, assess the extents to which these factors affect successful completion,

impact of the internal stakeholder on project successful completion and how the problems of construction projects successful completion delay can be addressed. There is the requirement for a methodical examination of the reasons for the delay in project's completion and developing a clear understanding among constructions projects professionals. Hence, this research focuses on proposing an Integrated Influential Factor (IIF) Model of internal stakeholder for construction projects completion in Yemen. It is believed that this proposed research when completed will improve the structure of the construction project sectors as well as adding value to the economy of Yemen.

Literature review: Since, project successful completion is connected with cost and time invade, the phenomenon of project completion failure has involved sympathy toward development experts and additionally a subject of study for scientists.

Construction projects in Yemen: The construction projects in Yemen has represented the fourth largest employer of the workforce in the country, between 9 and 10% of the working inhabitants, the average yearly increase rate of the sector is almost 5.4%, effectively contributing to the economic development in Yemen. With the comparatively large volume of investments currently in this sector as well as a probable increase in Foreign funding from World Bank and other donor agencies for developmental projects, the demand for services in this sector is bonded to increment steadily (Ahmad *et al.*, 2013).

Yemen has established an unparalleled building tradition, the wealthy, particular and orderly pattern of the traditional Yemeni architecture and townscape is really wonder. Until thirty years ago, this tradition was being successfully preserved (Ansi *et al.*, 2012). The main pressure was and yet is the fast pace of alteration from the traditional to modern and traditional building methods. Recent history, however, has demonstrated that it was not likely for the local construction industry to overcome with the vast growth in modern forms of construction that have occurred over the past decades.

Construction projects stakeholders: The idea of stakeholder theory was first created from a scholastic exploration stream being embraced in the US in the 1960's that characterized stakeholder as those gatherings with high adequate impacts in an association that would precipitate that association to stop to exist without their bolster, according to Li *et al.* (2013) and Stoney and Winstanley (2001) subsequent, Freeman (1984) built up

this definition and portrays "an accomplice in a relationship as any gathering or person who can influence or is impacted by the accomplishment of the association's targets". The task administration establishment (PMI) embraced this definition and expressed: "A partner is an individual, gathering or association who may influence, be impacted by or comprehend itself to be affected by a choice, action or result of an undertaking" (PMI., 2013).

The Project Management Body of Knowledge (PMBOK) takes note of that a stakeholder has numerous partners whose interests might be connected or in a struggle (PMI, 2013). An accommodating representation by Briner *et al.* (1997) appeared in Fig. 1 gives a generally acknowledged mapping of a stakeholder's principle partners. The distinguishing proof and administration of such stakeholders, along these lines, turns into a generous capacity for any association in crisis. It is likewise contended that an association's focal points are essentially respondent on its ability to enough manage stakeholders according to Verbeke and Tung (2013). Contingent upon the relationship between the partners and the association, they can as a rule, be isolated into two principle classifications, 'internal stakeholder' and 'external stakeholder' (Olander, 2006, 2007). Internal stakeholders are those effectively connected with and formally connected to the project, for example, owners, consultant, contractor, subcontractor, designer, employees and supplier. This association much of the time is straightforwardly inspired by the project and has a general and authoritative collaboration with the organization (Atkin and Skitmore, 2008). They are in some cases alluded to as primary stakeholders.

External stakeholders, then again, may not get instantly worried in the project basic leadership process, yet can at the present effect or may be affected by the task (Aaltonen and Kujala, 2010). The term external stakeholder is frequently utilized as a descriptor for groups not specifically connected to the organization and that may not straightforwardly get included in any financial decision making. Secondary stakeholders, be that as it may, may in any case significantly affect venture outcomes thus their interests and desires ought to be considered in a reasonable way. Figure 1 adjusted from (Cleland and Ireland, 2002) exhibit a schematic picture of potential internal and external stakeholders. Stakeholder administration as an assignment is specific to setting and consequently any procedures and strategies connected ought to mirror this connection. In the development projects in construction industries, through the different phases of a project from arranging through to the operation and upkeep, particular stakeholder get included

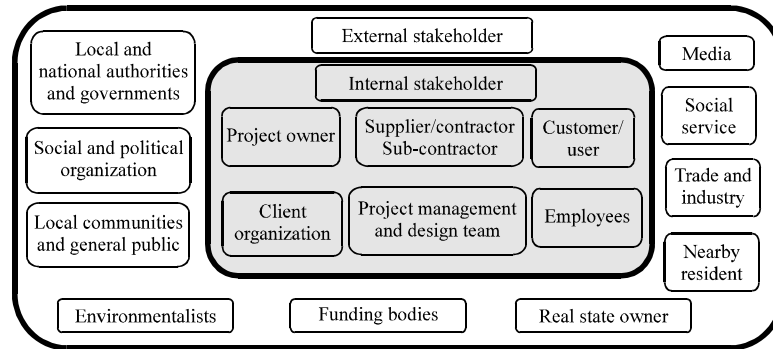


Fig. 1: Potential stakeholder for projects (Cleland and Ireland, 2002)

whose desires can influence the results of or might be influenced by both contrarily and decidedly the implementation of the project (Olander, 2007). They incorporate consultant, contractor, owner, project management team, designer, subcontractor, supplier, employees, local communities, government authorities funding bodies. These groups as expressed by numerous researchers (Atkin and Skitmore, 2008; Yang *et al.*, 2011; Torbati, 2014) are the fundamental stakeholders of development building projects. Atkin (2008) connoted that fruitful execution and finish of the project generally depend on tending to necessities and desires of the individuals who are included and inability to accurately address their prerequisites can bring about numerous project issues (Bourne and Walker 2005).

This thought is fortified by Johnson *et al.* (2008) who express that it is not sufficient to just distinguish stakeholders, project managers and client need to gauge every stakeholder advantage to show their desires on project decisions. Olander (2007) pushed that it is the key obligation of project pioneers to react to the prerequisites and requirements raised by their stakeholders and to have the capacity to complete, control and deal with the project basic leadership process. Deficient administration and supervision of stakeholder can bring about issues in the specialized and administration instrument of the project. Likewise, Bourne and Walker (2005) highlighted that clashing and concealed partner motivation, if not very much oversaw, can prompt numerous project failures. These issues highlight the requirement for having an efficient approach to recognizing key undertaking members, looking at and assessing their impact and conceivable issues that they can constrain on the project.

Project successful completion: Project completion's Success has dependably been the last focus of each movement of a task included development and building ventures as stated from study of study of Aramayo *et al.*

(2013). Project completion successfully has been widely talked about in the development and undertaking administration writing. Most studies have concentrated on the extent of undertaking achievement which implies the best approach to gauge accomplishment of project and components influencing project achievement. Doloi *et al.* (2012) state that a standout amongst the most widely recognized methods for measuring project achievement fulfillment is the triangle of cost, time and required quality. Additionally, a couple ponders have extended assignment accomplishment criteria into new perspectives, for example, stakeholders support and fulfillment, owners advantage, up and coming planned to association (Torbati, 2014).

MATERIALS AND METHODS

A total of seven constructs will be involved in the study. The names of these constructs are adopted from Cleland's potential internal and external stakeholder concepts. Cleland and Ireland (2002) demonstrated the concept of stakeholder in construction projects that has a total of seven internal stakeholders. All the names of these internal stakeholders are used to group the factors that will be used in the study. The constructs are Contractor Related Factor (CONTF), Consultant Related Factor (CNOSF), Owner related Factor (OWNRF), Designer Related Factor (DESNF), Subcontractor Related Factor (SUBCF), Supplier Related Factor (SUPLF) and Labour Related Factor (LABF). Integrated Influential Factors (IIF) model refers to the sum of all those factors which affect project successful completion belonging to internal stakeholders (Table 1). All these constructs are mentioned in the concepts of the definition of stakeholder in construction projects in many studies (Cleland and Ireland, 2002; Newcombe, 2003; Yang *et al.*, 2011; Atkin and Skitmore, 2008; Newcombe, 2003). This research intends to study the effect of these groups

(internal stakeholders) on construction projects with regards to successful completion. After reviewing the literature, a total of seventy-three factors are selected. These factors are selected based on how each of the factors is related to each of the construct. Any factor that is related to any construct in the study, it was grouped under that concept. The main reason for selecting these factors is because numerous research studies like, Doloi *et al.* (2012), Doloi (2012), Fallahnejad (2013), Odeh and Battaineh (2002), Assaf and Al-Hejji (2006), Long *et al.* (2004) and Ogunlana *et al.* (1996) all used most of these factors in their research studies. These articles were all published in high impact journals. These journals have a number of citations by several researchers. Hence, factors affecting project successful completion on time related to internal stakeholder is discussed as:

Factors that negatively affecting project successful completion on time

Consultant related factor:

- Poor project management
- Poor contract management
- Lack of responsibility
- Poor coordination among parties
- Inadequate experience
- Delay in approving major changes in the scope of work by consultant
- Delay in approval of shop drawings
- Consultant architect's reluctance for change
- Mistakes and discrepancies in contract documentations

Contractor related factor:

- Money cash flow during construction and financial difficulties
- Poor procurement programming of materials
- Non adherence to contract conditions
- Capability of the firm's construction team
- Lack of contractor experience
- Poor site management and supervision
- Planning and scheduling deficiencies
- Mistakes during constructions
- Inadequate modern equipment and using old technology

Owner related factor:

- Change orders
- Slow decisions from owner
- Delay in running bill payments to the contractor
- Conflict between owners and other parties
- Bureaucracy in owner's organization
- Lack of motivation for contractors for early finish
- Late of site delivery

- Incapable representative and inadequate planning
- Poor experience in construction projects
- Inappropriate contractual procedure
- Selecting inappropriate contractors

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Designer related factor:

- Project design complexity
- Lack of communication between design team and clients in design phase
- Design errors made by designers
- Lack of adopt standardization in design
- Insufficient data collection and survey before design
- Lack of experience of design team in construction project
- Mistakes and delays in producing design documents
- Understanding of owner's requirements by design engineer

Contractor related factor:

- Money cash flow during construction and financial difficulties
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- Non adherence to contract conditions
- Capability of the firm's construction team
- Lack of contractor experience
- Poor site management and supervision
- Planning and scheduling deficiencies
- Mistakes during constructions
- Inadequate modern equipment and using old technology

Subcontractor related factor:

- Conflicts in sub-contractors schedule in execution of project
- Lack of control over sub-contractor
- Delays in sub-contractors work
- Frequent change of sub-contractors because of their inefficient work
- Schedule in project execution
- Experience of subcontractors in construction works
- Reliable subcontractors

- Delays attributable to low productivity or missed deadlines by subcontractors
- Interference with other trades
- Financial difficulties of sub-contractor
- Subcontractor's slow mobilization

Supplier related factor:

- Material availability
- Delay in material delivery by supplier
- Escalation of material prices
- Supplier errors
- Delay in manufacturing
- Monopoly control by particular suppliers
- Poor communication between contractor and suppliers
- Unreliable supplier
- Poor quality of materials supplied by manufacturer

Labour related factor

- shortage of technical personnel (skilled labour)
- Lack of labour availability
- Low labour productivity
- Labour strikes due to revolutions
- Absenteeism of labour
- Unqualified/Inadequate experienced of labours
- Weak motivations

For this exploration, a questionnaire survey has been used to explore the effect of different properties that can be contrarily influencing project successful completion in the Yemen development division drawing from different worldwide analysts said above. A study of development experts speaking to different stakeholders required in development ventures in Yemen was directed. Heterogeneity of respondents is an imperative foundation in catching the effect of different traits on development venture consummation. In this study, the heterogeneity in the overview test was kept up by drawing closer to the chose gathering of respondents speaking to the key business parts over the construction development area.

Preparation of questionnaire: For the purpose of the quantitative aspect of the research which forms the dominance of the research instrument, the use of 5 point Likert scale is adopted. The pilot study was completed by posting and interviewing of organized survey questionnaire amongst the selected experts of owners, consultant and contractors who are involved in handling construction projects. In this respects, the respondents were solicited to approve the contents from the questionnaire and show the level of importance of the causes which utilizing 5 point Likert scale as Extremely Significant (ES), Very Significant (VS), Moderate

Significant (MS), Slightly Significant (SS) and not Significant (NS). An aggregate of 10 respondents required in this pilot study. Dominant part of respondents had Engineering education and quite a long while of experience in handling construction projects extending from 10-30 years with aggregate proficient experience of the 10 respondents. The Data collected from the pilot study was analysed utilizing Average Index (AI) calculation. The AI calculated for each factor was evaluated for its significance using the range adopted from Abdullah (2010) and Memon *et al.* (2011) which as follows: $1.00 < AI < 1.50$ not significant, $1.50 < AI < 2.50$ slightly significant, $2.50 < AI < 3.50$ moderately significant, $3.50 < AI < 4.50$ very significant and $4.50 < AI < 5.00$ extremely significant. It can be seen that out of 67 factors in the questionnaire survey noted that only 55 factors fall in the range of very significant ($3.50 < AI < 4.50$) and 12 variables were in the range of moderately significant ($2.50 < AI < 3.50$). Subsequently, for the questionnaire survey, this study considered 55 factors that fall in the rang very significant factors only. Last questionnaire survey sets were circulated among the professionals including owner, contractors and consultant to comprehend their perception regarding level of significant of the influential factors affecting project completion.

RESULTS AND DISCUSSION

Sampling statistics: Thus, an aggregate 301 completed questionnaire were gotten back in duration of 7 months, i.e., up to mid of September 2016. Of these, 5 questionnaire sets were deficient which were viewed as invalid and unacceptable for further examination and staying 296 survey set were considered valid for further analysis. Table 1 demonstrates the summary of statistics of the samples gathered.

Respondent's position demography: Respondents required in the study are occupied with various Position and division of construction development associations. These included project manager, architect, mechanical engineer, structural engineer, electrical engineer and quantity surveyor as summarized in Table 2.

Table 3 shows that majority of respondent (i.e., 27.6%) have project manager position in their organization. Structural engineers represented (18.7%) in this study. Electrical Engineers represented (19.4%) of this survey. Mechanical Engineers represent in (16.6%) of this research while Architects and Quantity Surveyor represented in (14.8 and 2.8%), respectively.

Respondent's organization demography: Respondents required in the survey are occupied with various parts of

Table 1: Survey statistics

Mode of survey	Sets of questionnaire involved	Questionnaire received	Valid responses
By posting Electronically (Email, survey monkey)	550	208	203
In person	27	27	25
Total	997	308	301

Table 2: Respondent position involved in survey

Position	Frequency	Percent	Valid percent	Cumulative percent
Valid				
Project manager	78	27.6	27.6	27.6
Structural Engineer	53	18.7	18.7	46.3
Electrical Engineer	55	19.4	19.4	65.7
Mechanical Engineer	47	16.6	16.6	82.3
Architect	42	14.8	14.8	97.2
Quantity Surveyor	8	2.8	2.8	100.0
Total	283	100.0	100.0	

Table 3: Respondent's organization

Organization	Total
Owner	54 (19.1%)
Consultant	105 (37.1%)
Contractor	124 (43.8%)
Total	283 (100%)

Table 4: Type of projects the respondent has mostly involvement

Variables	Frequency	Percent	Valid percent	Cumulative percent
Valid				
Residential	55	19.4	19.4	19.4
Commercial	88	31.1	31.1	50.5
Industrial	56	19.8	19.8	70.3
Infrastructure	84	29.7	29.7	100.0
Total	283	100.0	100.0	

construction development associations. These included owners, consultants and contractors firms as compressed in Table 3.

Table 4 shows that majority of respondent (i.e., 43.8%) are engaged contractors firms. Only 37.1% respondents are related to consultant firms while 19.1% of respondents are related to owner firms. Furthermore, a significant number of respondents were contractor's representatives followed by consultants and owner.

Respondent's project handled demography: The involved Respondents in the questionnaire survey have a huge experience in handling different sorts of projects of various size in terms of the contract amount. Table 5 summarizes the details of type of the large projects that handled by the respondents.

Table 4 exhibits that, 31.1% of respondents have experience of handling commercial construction projects, 29.7% of respondents are involved with development work of Infrastructure projects, 19.8% of respondents have experience of handling Industrial projects and 19.4% of respondents are possessed in development work of residential projects.

Table 5: Academic qualification of respondents

Variables	Frequency	Percent	Valid percent	Cumulative percent
Valid				
Bachelor degree	270	95.4	95.4	95.4
Master degree	11	3.9	3.9	99.3
Doctor of philosophy	2	0.7	0.7	100.0
Total	283	100.0	100.0	

Table 6: Respondent's experience

Variables	Frequency	Percent	Valid percent	Cumulative percent
Valid (years)				
1-5	29	10.2	10.2	10.2
6-10	36	12.7	12.7	23.0
11-15	96	33.9	33.9	56.9
>16	122	43.1	43.1	100.0
Total	283	100.0	100.0	

Respondent's expertise demography: Respondent's expertise was assessed based on their qualification and working experience. Academic qualification and working experience are very important aspects and play very important role in understanding any problem. Table 6 and 7 show the summary of the respondent's qualification and experience respectively. As demonstrated in Table 6, it can be seen that a large number of respondents, i.e., 270 of 283 (with 95.4%) have obtained bachelor engineering degree, followed by 11 (3.9%) respondents having master certificates and 2 (0.7%) having PhD certificates.

Table 6 shows that respondents participating in questionnaire survey have many years of experience in construction projects. A noteworthy number of respondents, i.e., 29 of 283 with 10.2% respondents are occupied with construction industry for below 5 years and 36 respondents (12.7%) respondents have experience of over 5 years and below 10 years and 96 respondents (33.9%) respondents have experience of over 10 years and below 15 years, the remaining 122(34.1%) respondents have experience of above 16 years. These demonstrate that respondents were sufficiently equipped and skilled for participating in the study survey.

Ranking of factors affecting project successful completion: Hierarchical assessment of factors that influence project completion was done to locate the most potential effects based on ranking study. The evaluation was carried out with the utilization of average index value as overall. The results of assessment are discussed in next study.

Ranking of overall data: In light of the overall data, the all of the 56 factors that influentially affected project successfully completion were analysed. Table 8 demonstrates the outline of average index and ranks of causes that influentially affect project successfully

Table 7: Ranking of overall factors

IIF that affecting project completion	Overall		Owner		Consultant		Contractor		Groups
	AI	Rank	AI	Rank	AI	Rank	AI	Rank	
Money cash flow financial difficulties faced by contractors during construction	3.84	1	3.77	2	3.92	1	3.82	1	CONTF
Conflict between owners and other parties	3.75	2	3.67	6	3.79	2	3.76	3	OWNRF
Delay in running bill payments for the contractor	3.72	3	3.68	5	3.70	8	3.78	2	OWNRF
Poor project management	3.70	4	3.60	8	3.76	4	3.70	4	CONSF
Slow decisions from owner	3.69	5	3.71	3	3.78	3	3.56	12	OWNRF
Escalation of material prices	3.68	6	3.81	1	3.60	14	3.70	4	SUPLF
Lack of contractor experience	3.67	7	3.60	8	3.61	13	3.78	2	CONTF
Design errors made by designers	3.66	8	3.54	11	3.61	13	3.78	2	DESF
Shortages of materials	3.64	9	3.69	4	3.59	15	3.62	6	SUPLRF
Poor site management and supervision	3.62	10	3.48	15	3.76	4	3.60	8	CONTF
Improper selection of contractors	3.60	11	3.62	7	3.71	7	3.49	16	OWNRF
Frequent design changes	3.60	11	3.52	13	3.74	5	3.55	13	DESF
Poor contract management	3.59	12	3.46	17	3.72	6	3.58	10	CONSF
Lack of responsibility of consultant engineers	3.58	13	3.43	19	3.65	11	3.59	9	CONSF
Incapable representative of owner organization	3.58	13	3.51	14	3.63	12	3.58	10	OWNRF
Lack of experience of design team in construction project	3.58	13	3.45	18	3.65	11	3.59	9	DESF
Poor coordination among parties	3.57	14	3.55	10	3.55	17	3.61	7	CONSF
Lack of communication between design team and clients in design phase	3.57	15	3.53	12	3.67	10	3.54	14	DESF
Incompetent subcontractors	3.57	15	3.53	12	3.69	9	3.54	14	SUBCOF
Inadequate experience	3.53	16	3.39	22	3.55	17	3.58	10	CONSF
Mistakes during constructions	3.53	16	3.54	11	3.58	16	3.46	18	CONTF
Poor planning by contractor	3.53	16	3.43	19	3.58	16	3.53	15	CONTF
Shortage of technical personnel (skilled labour)	3.53	16	3.43	19	3.67	10	3.48	17	LABF
Poor procurement of materials	3.51	17	3.56	9	3.51	20	3.46	18	CONTF
Recurrent change of sub-contractors because of their incompetent work	3.51	17	3.46	17	3.52	19	3.55	13	SUBCOF
Inadequate modern equipment with using old technology	3.49	18	3.52	13	3.43	26	3.53	15	CONTF
Bureaucracy in owner's organisation	3.49	18	3.47	16	3.52	19	3.48	17	OWNRF
Delay in approving major changes in the scope of work by consultant	3.46	19	3.40	21	3.33	31	3.64	5	CONSF
Inappropriate contractual procedure	3.45	20	3.40	21	3.51	20	3.44	20	OWNRF
Misconception of owner's requirements by design engineer	3.45	20	3.37	24	3.37	29	3.57	11	DESF
Low labour productivity	3.45	20	3.47	16	3.48	22	3.42	22	LABF
Delay in approval of shop drawings	3.44	21	3.35	25	3.51	20	3.42	22	CONSF
Poor communication between contractor and suppliers	3.44	21	3.51	14	3.50	21	3.36	27	SUPLF
Monopoly control by particular suppliers	3.43	22	3.35	25	3.51	20	3.40	24	SUPLF
Delay in manufacturing	3.42	23	3.47	16	3.47	23	3.39	25	SUPLF
Lack of labour availability	3.42	23	3.45	18	3.44	25	3.37	26	LABF
Non adherence to contract agreement	3.41	24	3.40	21	3.39	28	3.44	20	CONTF
Lack of motivation for the contractor to early completion	3.41	24	3.39	22	3.34	30	3.41	23	OWNRF
Unqualified/inadequate experienced of labours	3.39	25	3.38	23	3.39	28	3.40	24	LABF
Labour strikes due to revolutions	3.38	26	3.41	20	3.40	27	3.33	29	LABF
Consultant architect's reluctance for change	3.37	27	3.39	22	3.46	24	3.29	32	CONSF
Mistakes and discrepancies in contract documentations	3.36	28	3.22	29	3.31	32	3.45	19	CONSF
Incomplete data collection and survey before design	3.36	28	3.27	27	3.33	31	3.43	21	DESF
Poor communication between contractor and suppliers	3.35	29	3.40	21	3.33	31	3.35	28	SUPLF
Lack of adoption of standardization in design	3.30	30	3.22	29	3.37	29	3.30	31	DESF
Improper planning by subcontractors	3.28	31	3.55	10	3.29	33	3.16	34	SUBCOF
Capability of the firm's construction team	3.26	32	3.17	30	3.33	31	3.27	33	CONTF
Changes in material specification and type	3.22	33	3.17	30	3.04	39	3.31	30	SUPLF
Interference with other trades	3.21	34	2.29	34	3.53	18	3.42	22	SUBCOF
Absenteeism of labour	3.20	35	2.87	33	3.06	38	3.33	29	LABF
Financial difficulties of sub-contractor	3.15	36	3.26	28	3.18	34	3.15	36	SUBCOF
Weak motivations	3.14	37	3.00	32	3.16	35	3.16	34	LABF
Reliable subcontractors	3.10	38	3.33	26	3.14	36	3.10	37	SUBCOF
Low level of experience of subcontractors in construction works	3.09	39	3.14	31	3.10	37	3.08	38	SUBCOF

completion investigated from contractor, consultant and owner perception. This method is adopted from Memon *et al.* (2011).

Table 7 demonstrates the rank of every factor based on the different groups of respondents like owner, consultant and contractor and also the overall

Table 8: Ranking of the effects of (IIF) to project successful completion

The effects of the negatively influential Factors to project successful completion	Overall		Owner		Consultant		Contractor	
	AI	Rank	AI	Rank	AI	Rank	AI	Rank
Negatively effects the project delivered on schedule time	3.74	1	3.78	1	3.69	2	3.73	1
Negatively effects the project delivered on dedicated cost	3.71	2	3.69	2	3.70	1	3.72	2
Negatively effects the project delivered with satisfaction of the stakeholder of the project	3.65	3	3.67	3	3.61	3	3.63	3
Negatively effects the project delivered with fulfillment of the technical specification of the project	3.53	4	3.54	4	3.51	4	3.49	4
Negatively effects the project delivered with meeting all the project objectives/requirements	3.49	5	3.52	5	3.48	5	3.46	5

respondents. This study chooses only the top ten most critical factors that influentially affect the project completion successfully which adopted the same methodology of Fallahnejad (2013). The top ten critical factor are ranked by overall respondents, include the money cash flow during construction (AI = 3.84) conflict between owners and other parties (AI = 3.75), delay in running bill payments for the contractor (AI = 3.72) poor project management (AI = 3.70), slow decisions from owner (AI = 3.69) escalation of material prices (AI = 3.68), lack of contractor experience (AI = 3.67), design errors made by designers (AI = 3.66), Poor planning by contractor (AI = 3.64), Poor site management and supervision (AI = 3.62). The ten critical factors are presented in more detail with comparison with other countries in the following study.

Comparison with other countries: This study provides the overview about factors that can significantly affecting negatively to project successfully completion according to schedule date, cost dedicated and technical specification in various region by examination of ten noteworthy causes from this study with past studies did in this connection. Despite the fact that the chose explores are not definitely similar about the purpose and methods of survey, however, the comparisons are useful for understanding the problems of construction projects only. The critical variable that negatively affecting project completion in Yemen construction industry as identified in this study which detailed below.

Money cash flow and financial difficulties faced by contractors: This element was found as first significant donor that negatively affecting to project successful completion as indicated by particular time and cost with AI estimation of 3.84 as concurred by contractor and consultant groups while owner’s representative rated this factor as second rank. This is valid for temporary workers since they assume essential part in achievement of any development extend particularly for physical execution of works. Hence, forth, sufficient income and money related management and avoid time and cost overrun. Olatunji (2008) stated that cash flow problem is very critical,

however there is direct relationship with the level of discrepancies in the virtues of client commitments in terms of cash-flow to the contractor, thus the scenario puts the contractor in a difficult position to optimize effective planning.

Conflict between owners and other parties: This factor was found as the second significant factor that can negatively influence to project completion according to specific time and cost as agreed by contractor and consultant groups respectively ranked as 3rd and 2nd while owner’s representative rated this factor as 6th rank. The disputes between the contractual parties are one of the most important obstacles to the success of the projects which are to accompany the syndrome in engineering projects and because of interest between the parties to a conflict. This result is compatible with study of Meng (2012) which proofed that the conflict will significantly affecting negatively to success of the project.

Delay in progress payment by owner: Delay in progress payment is 3rd major factor contributing that can negatively affecting the project successful completion. In any case, there is some difference for the positioning among the respondent groups. Contractor’s group ranked this factor at 2nd place. On the contrary consultant and owner groups ranked this factor as moderately significant by placing at 8th and 5th rank, respectively. In construction industry, mostly the contractors depend on the monthly payments received from owner. If the payment is delayed, the cash flow of the contractors is disturbed which affect the procurement of material and slowing progress of work resulting in delaying activities which leads to time overrun and consequently face cost overrun. Hence, contractor’s group ranked it as very significant factor while according to consultants and owner, the contractors must have strong financial position.

Poor project management: Poor project management is 4th major factor contributing that can negatively affecting the project successful completion. In any case, there is

some difference for the positioning among the respondent groups. Consultant and contractor groups ranked this factor as the 4th rank while the owner ranked by placing at 8th place. This is contributing in delaying in change design when the owner wants change in scope during construction stage, approval of material and inspection of completed work. Owners make changes in scope which leads to frequent design and specification changes which lead to waste of material and delay in completing activities as stated in study of Kikwasi (2013). Consequently project budget is overrun. Project management is all about good communications.

Slow decision from owner: Slow decision from owner is 5th major factor contributing that can negatively affecting the project successful completion. In any case, there is some difference for the positioning among the respondent groups. Consultant and owner groups ranked this factor as the 3th rank while the ranked by placing at 12th place. Slow decision from owner affects all project teams. Change in design documents during construction stage including drawings and specifications, does not provide the contractor with clearly defined basis to plan the resources needs of a construction project. This finding is concurrently with the findings from other countries (Haseeb, 2011) this factor significantly affecting the time overrun as well as will significantly affect to cost overrun and ranked it as the 3rd rank in construction industry in Pakistan. The information flow between all project team members was neither timely nor well organized and the decision-makers were not clearly identified.

Escalation of prices of materials: Change of costs of materials is positioned at sixth place. There is some contradiction for the positioning among the respondent groups. Proprietor bunches positioned this component as first place while contractor's gathering positioned this element at fourth place. Actually specialist positioned it as reasonably critical by putting at fourteenth place. This finding is simultaneously with the discoveries from different regions (Azhar *et al.*, 2008; Ameh *et al.*, 2010). Since, development materials contribute a noteworthy bit of project cost henceforth any extra cost will influence essentially on the general spending plan and will significantly affected the schedule date which will cause time overrun and can lead to accept a low quality of materials which will influentially affecting the technical specification of the project. "Fluctuation of prices". This finding is concurrent with previous studies in Pakistan and Ilorin while in Gaza, this factor was found as 3rd significant factors. In Nigeria, Omoregie and Radford (2006) found that this factor is most significant factors of

cost overrun in infrastructure project while more recent study of Ameh *et al.* (2010) showed that it is 3rd major contributor to cost overrun in telecommunication.

Lack of contractor experience: Lack of contractor experience is ranked at 7th place. In any case, there is some difference for the positioning among the respondent groups. Owner groups ranked this factor as 8th place while contractor's group ranked this factor at 2nd place. On the contrary, consultant ranked it as significant by placing at 13th place. Insufficient contractor experience was a critical component influencing project successful completion. This can be connected to the temporary worker awarding strategy where most activities are recompensed to the least bidder and where neighborhood contractual workers exclusively or through joint endeavors are granted expansive and complex undertakings for which they have little experience since access to such tasks was constrained to global contract based workers before. Neighborhood contractual workers regularly neglect to deliver a functional and workable at the underlying arranging stage. This disappointment mirrors the absence of methodical site administration and lacking contractual worker experience on Yemen development ventures. Deficient temporary worker arranging results in the absence of adequate point of interest and an accentuation on adornment in a few arrangements.

Design errors made by designers: Design errors made by designers are ranked at 8th place. In any case, there is some difference for the positioning among the respondent groups. Owner groups ranked this factor as 11th place while the Contractor's group ranked this factor at 2nd place. On the contrary, consultant ranked it as significant by placing at 13th place. Design errors are influenced by the customer's needs for the outline and archives to be finished inside a restricted time. The Bill of Quantities (BOQ) happens in both the pre-contract and post-contract periods. In this way, amid the post contract period BOQ gives numerous advantages including the appraisal of temporary workers and surveyors as far as advancement installments and varieties. Assaf and Al-Hejji (2006) examined the under achievement in execution in development projects in Saudi Arabia. Their outcomes uncovered that numerous variables identifying with outline were reasons for underachievement in project execution which concurred with consequences of (Organi *et al.*, 2011). These elements include: missteps and errors in design delays in creating plan reports, indistinct and deficient points of interest in drawings, the multifaceted nature of venture configuration, lacking

information accumulation and looking over before starting the configuration, misconception of the customer's prerequisites by the configuration engineer, insufficient configuration group experience and the non-utilization of cutting edge building plan programming. Davis *et al.* (2009) contended that outline blunders made by the creators are influenced by the customer's requests for the configuration and reports to be finished inside a restricted time and consider a tremendous misfortune in spending plan and postponed the timetable date and in addition will influence to extend fruitful culmination in general.

Shortages of materials: Material resources are most important factors for accomplishing any construction activity. Normal supply of the material in legitimate amount is essential. Unavailability of adequate quantity of material will affect the project adversely by slowing work progress, stoppage of activities etc. Hence, shortage of materials is very critical cause and contributes significantly to project cost overrun. The survey results show that shortage of material is 9th ranked cause that can influentially affecting the project successfully completion in Yemen construction industry. Owner representative have ranked this cause as 4th most important factors while contractors placed it at 6th rank while consultant ranked it as the 15th place. Research demonstrate that quick improvement of development industry has been requesting a lot of materials as bond, steel, blocks and so forth which have added to the lack of materials and have brought about the costs on the ascent and can essentially affected to calendar date and the specialized determination of the ventures (Frimpong *et al.*, 2003; Kaming *et al.*, 1997; Odeh and Battaineh, 2002; bringing about immense measure of expense and time invade. Omoregie and Radford (2006) in the investigation of cost heightening in Nigeria found that deficiency of material was positioned as 6th critical variable. While, in Vietnamese development projects, professionals have positioned this component as the 9th most huge. In Ghana, this element was the 15th critical cause influencing development time and cost (Frimpong *et al.*, 2003).

Poor site management and supervision: Every respondents group concurred that this factor can essentially assume a critical part to impacting the project successful completion particularly influencing the expense and time overwhelm however there is some difference as far as positioning amongst the respondent groups. Consultant's group ranked this factor at 4th place while contractor's group placed this factor at 8th rank and owner's group ranked this factor at 15th place. Poor site administration and supervision component is

concentrating more towards temporary worker bunch. It mirrors the shortcoming and ineptitude of temporary workers which influences fundamentally on the cost, time and quality control execution (Ali and Kamaruzzaman, 2010). This component can came about to late consistence with statutory body's necessity, poor correspondence with sub-temporary workers and material suppliers fundamentally, subsequently influencing the advancement of undertaking. Development industry in Indonesia likewise confronted poor site administration that lead to negative cost and time execution of task (Harisweni, 2007).

The effects of (IIF) to project successful completion: The consequences of (IIF) to project successful completion are ranked based on average index values as shown in Table 8. The results from the Table 8 show that, 4 out of 5 factors had average index value in the range of $3.50 < AI < 4.50$. The 5 significant effects include effects the project delivered on schedule time, effects the project delivered on dedicated cost, effects the project delivered with satisfaction of the stakeholder of the project and effects the project delivered with fulfilment of the technical specification of the project as well.

The (IIF), affects the project to delivery on approved schedule time is ranked as the 1st consequences which caused delay in implementation of project during its specific agreed in the contract and approved schedule date. However, there is slight disagreement between the respondent groups. Contractors, owner placed this factor as 1st ranked while the consultant placed this factor as 2nd ranked.

Project completion delay, cost overrun happens about in every project except their effect contrasts from project to project. Through a development construction project, an occurrence of delay may happen from any of the factors identified with the enthusiasm of stakeholder of the projects which may influence antagonistically by bringing on unsettling influence of work, loss of profitability, loss of time, cost invades, claims or here and there end of agreements (Tumi *et al.*, 2009). At the point when there is a delay in the project's completion, the project successful completion times are supported by extension or the advancement of works is quickened, be that as it may the greater part of the alternatives result in additional expenses to the task (Haseeb, 2011). The case get to be serious between the owner and contractor of the projects when it is scrutinized that whether the contractor was qualified for case the additional expense or not. Such cases by and large include scrutinizing the truths, causal components and contract elucidations (Van *et al.*, 2011).

The (IIF) affects the project to delivery on dedicated cost is ranked as the 2nd consequences which caused increasing the dedicated cost of project during its life cycle. However, there is slight disagreement between the respondent groups. Contractors, owner placed this factor as 2nd ranked while the consultant placed this factor as 1st ranked. Cost overrun is a noteworthy issue that happens all inclusive including Yemen. Cost increasing is come about because of different elements which are fundamental to recognize for enhancing cost execution in development projects. Cost overrun is a worldwide wonder in the development business and once in a while activities are done inside the planned expense. The issue of cost overrun in development projects is exceptionally predominant in both created and developing countries yet this pattern is extremely serious in developing countries where these overwhelms at times surpass 100% of the foreseen cost as stated by study of Azhar *et al.* (2008). Frimpong *et al.* (2003) in their worldwide investigation of development projects execution presumed that cost overwhelm is a noteworthy issue in the development business where 9 of 10 projects are confronted by these invades which regularly go between 50-100%. In developing countries. UK additionally development industry is influenced by this issue (Olawale and Sun, 2010) and almost 33% of the customer's dissension that their undertakings by and large overran the allocated budget (Jackson, 2002).

The (IIF), affects the project to delivery with satisfaction of the stakeholder of the project is ranked as the 3rd consequences. However, there is a full agreement between the respondent groups. Contractors, owner and consultant placed this factor as 3rd ranked. Various distinctive interests can be influenced, contrarily, over the span of a major construction project. Neglecting to address and meet the worries and desires of the stakeholders included has brought about numerous projects disappointments and failure. Construction development projects include various stakeholders and their fulfillment could straightforwardly impact the execution of subsequent projects. Driven by a yearning to enhance project achievement successfully, the basic fulfillment components relevant to the development administration procedure ought to be recognized. In all actuality stakeholder fulfillment is the basic analysis of worth creation yet we have almost no direction not to mention apparatuses and strategy to help us measure stakeholder gratefulness. A project completion can be measured customarily by three components which are cost, time and quality. Scientists however contended that the measure of task achievement can never again be confined to the conventional markers. They supported

that the extension of achievement estimation towards project administration achievement. Presented that the high disappointment rate of real projects has been ascribed to an absence of regard for partner towards a task can bring about cost invade and time plan delay because of contention over project design and execution.

The (IIF) negatively affects the project to delivery with fulfillment of the technical specification of the construction project is ranked as the 4th consequences. However, there is a full agreement between the respondent groups. Contractors, owner and consultant placed this factor as 4th ranked. Specifications, an essential segment of construction development documentation, diagram the levels of quality and the standards to be met in construction development of the project. Composed details were initially created independently from drawings to eliminate the mess brought on by protracted depictions. Also, putting portrayals together in in one place kept away from the disagreements and blunders frequently brought about when details are rehashed in numerous places. Specifications characterize the subjective prerequisites of materials and items to guarantee that everybody comprehends the item necessities. Whether you are a planner, engineer, architect or some other outline advisor in the field of construction development projects, the most vital part of any projects past the drawings is the specifications. A complete very much archived detail is a protection to both the outline group and the proprietors to guarantee a complete and utilitarian project. In most all jurisdictions the determinations (project specification manual) holds more legitimacy than the real drawings.

The (IIF) negatively affects the project to deliver with meeting all the project objectives/requirements is ranked as the 4th consequences. However, there is a full agreement between the respondent groups. Contractors, owner and consultant placed this factor as 5th ranked. A project is a one of a kind, transient attempt, embraced to accomplish arranged targets which could be characterized as far as yields, results or advantages.

CONCLUSION

The result of analysis from this study can be said to be of awesome importance to the construction development projects. Dominant part of the respondents are completely required in the construction industry with at least years of construction experience, implying that the respondents have abundance of learning and could supply the vital data on the inquiry conveyed in the surveys. Construction industries projects are to a great

degree variable and affected by huge factors. An Integrated Influential Factor (IIF) which negatively affects project success completion was created. Questionnaire was developed with 78 factors perceived from literature review. Going before honest to goodness survey outline, pilot study was coordinated to check variables that influentially affecting project completion which identified from literature review in relevance with construction industry of Yemen. Pilot study resulted in identifying 55 significant factors which were considered for further study in Yemen construction industry. Modified questionnaire sets were distributed amongst owner, consultant and contractor organization, this resulted in collecting 283 valid samples. Collected samples were analysed. As a results 7 groups as: Consultant Related Factors (CONSRF) consisting of 9 causes, Contractor Related Factors (CONTRF) consisting of 9 causes, Owner Related Factors (CONTRF) consisting of 8 causes, Designer Related Factors (DESRF) consisting of 7 causes, Sub-contractor Related Factors (SUBRF) consisting of 7 causes, Supplier Related Factors (SUPRF) consisting of 7 causes, Labour Related Factors (LABRF) of 7 causes were developed. The samples were analysed with average index method to assess the ranking of factors that influentially affecting project successfully completion. The top 10 significant factors include money cash flow during construction, conflict between owners and other parties, delay in running bill payments for the contractor, poor project management, slow decisions from owner, escalation of material prices, lack of contractor experience, design errors made by designers, shortage of materials and poor site management and supervision. The effect of (IIF) is negatively influences to project successful completion regarding to time overrun, cost overrun, negatively affect to satisfaction of the stakeholder, negatively affect to technical specification and not fulfillment all meeting all the project objectives/ requirements.

LIMITATIONS

Despite the fact that best endeavors were placed in this research and findings do make a huge commitment for construction industries projects, this research has a few limitations. The relationship between different reasons of variables that negatively affect project successful completion and its effect on general project completion must be nitty gritty further which is the researcher expected future research to create models utilizing Structural Equation Modeling (SEM) for evaluating the effects of these elements identified with internal stakeholder of construction projects.

RECOMMENDATIONS

A project is generally considered to be a win in the event that it accomplishes the targets as per their acknowledgment criteria, inside a concurred timescale and spending plan. Interest in powerful project administration will have various advantages to both the host association and the general population required in conveying the project. Analyse extent of every project, highlight risks and suppositions, dole out obligations and possession, characterize project destinations and basic achievement components, devise a conveyance plan, illuminate all significant gatherings and screen/guarantee project conveyance. It will give a more noteworthy probability of accomplishing the fancied result, guarantee productive and best esteem utilization of assets and fulfill the contrasting needs of the project's stakeholders.

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