

Causes of Time and Cost Overrun: A Case Study of Health Sector Projects in Peshawar, KPK

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Abstract

Public sector projects in KP suffer time delays leading to years of delay and cost overrun of over Rs25 billion, surprisingly close to half of this amount i.e. 11.2 billion is reported in the health sector projects in KP. This paper, therefore, explores factors leading to time and cost overrun in the construction and IT projects of Health Department Peshawar, Government of KPK, Pakistan. To explore the causes of cost and time overrun, the study utilized Yin's case study model thus collecting data through qualitative semi-structured interviews. The study used Miles and Huberman (1994) approach of thematic modelling for data analysis. The finding reveals that factors leading to time and cost overrun are administrative issues, delays in fund release, political issues, monitoring & control, worksite issues, inflationary effects, poor cost estimation, issues from contractor's side, stakeholders and IT issues. While, certain factors causing overrun in specific to IT projects are resistance by the stakeholders for change, lack of understanding on the part of consumer about the benefit of the project and rapid changes in technology.

Keywords: *Cost overrun, Time overruns, Public Sector Projects, Construction Projects, IT Projects*

JEL Classification: : D61, D23

INTRODUCTION

The project's success and performance are measured by the triple project constraints e.g. Time, Cost, and Quality. For it, planning is indispensable to ensure appropriate deployment of resources and that is where project management comes in action (Munns & Bjeirmi, 1996). Improper planning or management can cause cost and time overruns leading to projects failures (Baccarini, 1999). Time delay means slipping over of the project from the scheduled time (Divya & Ramya, 2015) while, Cost overrun is the mismatch between the actual and the estimated project cost, which is when the final cost of the project exceeds the originally estimated cost (Avots, 1983). Such problems related to cost and time are faced by different projects around the globe and have become a prominent issue for the most construction projects around the world

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(Haslinda, Xian, Norfarahayu, Hanafi & Fikri, 2018).

Causes of Time Overrun

Time Overrun is a common problem in construction projects worldwide. It is more serious and severe in developing countries where it exceeds 100% of the anticipated cost of the project (Kaming, Olomolaiye, Holt & Harris, 1997; Le-Hoai Dai Lee & Lee, 2008). The causes of time overruns differ from project to project and in different situations. The top universal delay factors are delay in payment of contractor(s), poor planning and scheduling, poor site management, design changes during construction, inadequate contractor experience and approaches, sponsor/owner/client's financial difficulties, improper or incomplete design, poor site management and supervision, shortage of skills and poor productivity (Zidane & Andersen, 2018). According to Ade-ojo and Babalola (2013), major causes are design error, poor site condition, delay in payment, financial incapability of client etc.

Akinsiku and Akinsulire (2012) opine that most common factors leading to it are cash flow difficulties by the role players, frequent changes in the orders and designs. Similarly, Ali, Smith, Pitt and Choon (2012) have identified a shortage of labour, construction mistakes, co-ordination problems the reasons behind it. Another study reveals that workforce, materials, contractual issues, and coordination between construction parties can cause time overrun (Umar, 2018). According to Memon, Rahman and Azis (2012), the major causes are the anomalies in the design, documentation errors, financial miss-management, poor project management, and external factors. While, the contract size and complexity along with an increase in a number of changes orders, increases the likelihood of it (Hinze & Wiegand, 1992). The risk factors also affect the outcomes of a project (Kasimu, 2012; Memon et al., 2012; Le-Hoai et al., 2008; Doloi et al., 2012).

In addition, Al-Momani (2000) is of the opinion that the main reasons of delay in public sector projects are related to designers, user changes, weather, site conditions, late deliveries, economic conditions and change in scope of work. In addition, the five most important causes are unrealistic contract duration, slow change orders, delay in payment of performed work ineffective planning and scheduling by contractors and slow variation orders in extra quantities (Rachid, Toufik & Mohammed, 2019). Similarly, factors internal to the public sector are poor project design, mismanagement, inadequate funding of the projects, indecision, and lack of co-ordination between stack holders and poor project appraisal by the concern authorities (Morris, 1990). The bad economic and political situation is also a major issue (Enshassi, Al-Najjar & Kumaraswamy, 2009). Lack of waste management strategy, unrealistic duration imposed by clients, rework due to the construction errors, excessive subcontracting, ineffective planning and scheduling, lack of collective planning and unskilled workforce also causes time overrun (Bajjou & Chafi, 2018).

Causes of Cost Overrun

In the execution of construction projects, cost overruns are one of the most critical issues. The problem of cost overruns is generally acknowledged while the causes and explanations are subject to more debate (Cantarelli, 2011). Many scholars have conducted a large number of studies to find the sizes, causes, and distribution of cost overruns (Anigbogu, Ahmad & Molwus, 2019). According to a study, changes in the scope, the high indirect cost in a period of low

productivity, and lack of design detail during budgeting causes cost overrun (Franca & Haddad, 2018). Design changes also cause overrun (Keng, Mansor & Ching, 2018). According to Al-Najjar (2002), technical incompetence, poor organizational structure, failure of the enterprise, poor financial management, inadequate project preparation, planning and implementation, issues of coordination and communication between the stockholders, tendering manoeuvres by contractors such as front-loading of rates, incomplete design, bad allocation of labour and delays in decision making by the government causes cost overrun (Asiedu & Adaku, 2019). Identified poor contract planning and supervision change orders, weak institutional and economic environment of projects, and lack of effective coordination among the contracting parties.

Meanwhile, the major causes of cost overrun are poor pre-construction budget and material cost planning, inaccurate quantity take-off and materials cost increased by inflation (Haslinda et al., 2018). Alinaitwe, Apolot & Tindiwensi (2013), identified scope creep, lack of monitoring, deferred payments cost of capital and political instability reasons for cost overrun. Whereas, (Johnson & Babu, 2018) the top five causes of cost overrun are poor cost estimation, design variation, financial constraints of the client, delay in client's decision-making process, and inappropriate procurement method. Other factors which are usually responsible for delays and costs are excessive bureaucratic checking and approval procedures, unclear definitions of contract terms by the client and insufficient geotechnical investigations at the feasibility stage (Mansfield, Ugwu & Doran, 1994). In most cases, the cost estimation is taken wrong and the ranking of the projects in terms of its viability is also inaccurate, as a result, unimportant projects are implemented which results in loss of resources. Different accounts for this problem have been identified by (Morris, 1990; Odeck, 2004; Bruzelius, Flyvbjerg & Rothengatter, 2002; Flyvbjerg et al, 2003). In addition, lack of knowledge, conflict among project participant, and the project manager's ignorance also cause cost overruns (Sinesilassie, Tabish & Jha, 2018).

Cost and Time overrun: Scenario of Pakistan

Various factors contribute to time and cost overrun in construction and IT projects in Pakistan in the public sector. The most significant factors of time overrun in public sector construction projects in Pakistan are inadequate constructor's experience, poor site management and supervision, incompetent sub-constructor assigned by the constructors, material shortage, frequent design changes, design mistake, delay in payment, financial difficulties faced by client, inadequate planning and scheduling, and financial difficulties faced by constructor (Akhund et al., 2018). According to Khan et al., (2015), overruns are due to political instability, mismanagement, changes in government policies, malpractices, corruption, unaccounted inflation rates, financial crunches contributing to deficit developmental budgets, bidding irregularities and old procedure of procurement. Another study revealed that the most serious factors are inadequate planning, rapid design changes, late delivery of materials at the site, poor site management, and cash flow problem faced by the contractor (Sohu et al., 2017).

Iran-Pakistan Gas Pipeline negotiation has been lingering, due to changes in its scope (Khan, 2013). Even projects which start with good initial planning on goals and deliverables become victims of this dilemma, such as New Islamabad airport, and many more. Political factor has also a role in it (Munir, Ahsan & Zulfqar, 2013). According to Amir (2014), Khyber Pakhtunkhwa's public projects suffer a cost overrun of over Rs25 billion and surprisingly, the health sector

projects end up with an additional cost of Rs11.2 billion. Implementation delays have also over cost healthcare projects in Khyber Pakhtunkhwa. Representatives of the World Bank mentioned that the project is in ‘problem status’ due to ‘extensive implementation delays’, specifically the procurement process delays of district management contracts (Ahmed, 2014). The respondent of Dawn news further enlightened the facts regarding the health sector that PKR8847 million was released but only PKR 2585 million was utilized. The major reasons were delays in the decision-making process and strict rules and regulations for the poor utilization of funds (Akbar, 2015). In specific to IT and Construction projects in the health sector of KP, the projects suffer from cost and time overrun resulting in delays of perceived objectives with a negative impact on the allocated budget.

The above discussion makes the subject matter important for the researcher to study cost and time overruns and to shed light and uncover the triggering factors in the construction and IT-related projects in the public health sector Peshawar, KP province, which are missing from the literature. As evident from the literature, Cost and time delays in projects is not only a global phenomenon but also grounded in Projects in Pakistan. In Pakistan, it causes loss of Billions of Rupees. While in specific to Public health sector of KPK resources are wasted due to this phenomenon.

Theoretical and Practical Implication of the Study

Theoretically, it will contribute to the existing literature of Project Management While, Practically, It is expected that it will assist the policymakers and Practitioner with respect to Construction and IT projects. The conceptual framework derived from the literature is mentioned below.

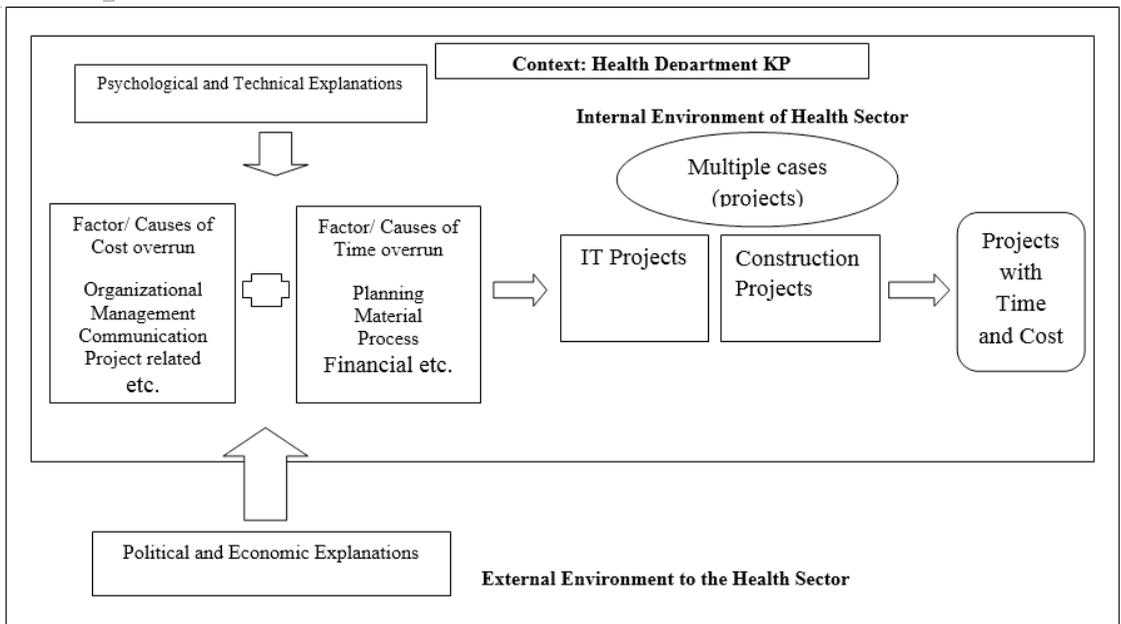


Figure 1: Conceptual Framework

Study Objectives

- 1 To understand the phenomenon and constructs/factors which contributes towards cost and schedule overrun in construction and IT projects of health dept. KP.
- 2 To compare and contrast the various factors leading to time and cost overrun in construction and IT projects of health department KP.

Research Questions

Q1: Why medium and large-scale construction and IT projects mostly end up having time creep?

Q2: Why medium and large-scale construction and IT projects mostly end up having a cost overrun?

Q3: How construction and IT projects differ from each other on the basis of the factors/ phenomenon resulting in time and cost creep?

METHODOLOGY

Paradigmatic Influence

The way in which this study understands the reality and knowledge is that reality is a relative term and is dependent on people. People construct their own understanding of reality and knowledge from an interaction between the experiences and ideas (Eddy, 2004). Therefore, this study has an interpretivist paradigm which is the outcome of the relationship between the researcher and the respondent. Due to qualitative nature of data, an inductive approach is adopted as this approach condense extensively, and varied raw text data into a summary format and make a clear link between findings from the raw data and research objective. It also gives an efficient and convenient way of qualitative data (Thomas, 2003).

Case Study as a Research Strategy

Yin (2003), suggests a review of three conditions before considering a research strategy. These are the type of research questions, the degree of control of a researcher over the phenomenon, and whether the event is historic or contemporary with some real-life context. When the phenomenon is contemporary having real-life context, posing 'why', 'how', and 'what' type questions then case study is preferred research strategy. This study has a "how" and "why" questions and a real-life contemporary context. Therefore, a case study as a research strategy is relevant to it and multi-case study approach is adapted as different people from different projects are to be examined.

According to Kothari (1990), an interview is a common data collection tool in qualitative research. This is a qualitative study in which different respondents have to be examined. That is why semi-structured interviews will be conducted to gain insight into the subject matter as a semi-structured interview allows the respondents to provide rich descriptions. According to Dolma (2010), Unit of analysis is the entity analysed in a scientific study. The unit of analysis of this study is the selected Projects in which different people are to be interviewed and analysed. Based on the Judgemental sampling technique, Seven Medium and large scale projects (five

related to construction and two IT-related projects) from the public health department, Peshawar, Government of KPK are selected for the study. These projects are Accident and Emergency Department KTH, Medical and Allied Department LRH, Clinical and Performance Project KTH, Automation of Medical Records LRH, Institute of Cardiology, Surgical and Allied Block KCD, and Burn Unit/ Hospital Peshawar. The respondents are project directors, deputy project directors, M & E officer if any, chief planning officer/senior planning officer, chief HSRU, project consultants, one each contractor of the project etc. According to Miles and Huberman (1994), in thematic analysis, data is reduced, displayed and verified or concluded. To deal with qualitative data, it is an approach involving the identification of themes or pattern, its classification and then interpretation(Goddard, 2012). This study is qualitative in nature therefore, thematic analysis is relevant.

RESULTS & FINDINGS

The summary of the analysis is given below in figure 2 and figure 3.

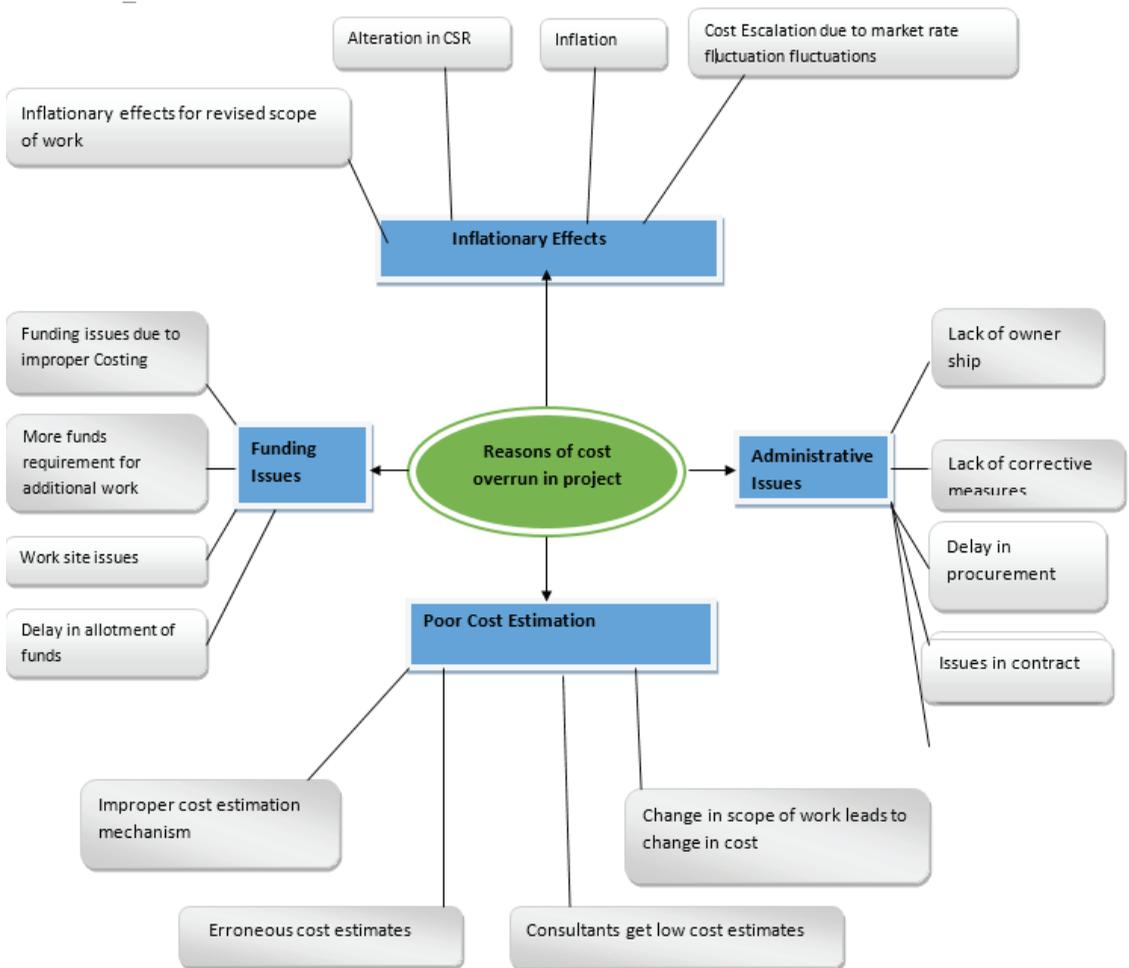


Figure 2: Thematic network of causes of cost overrun.

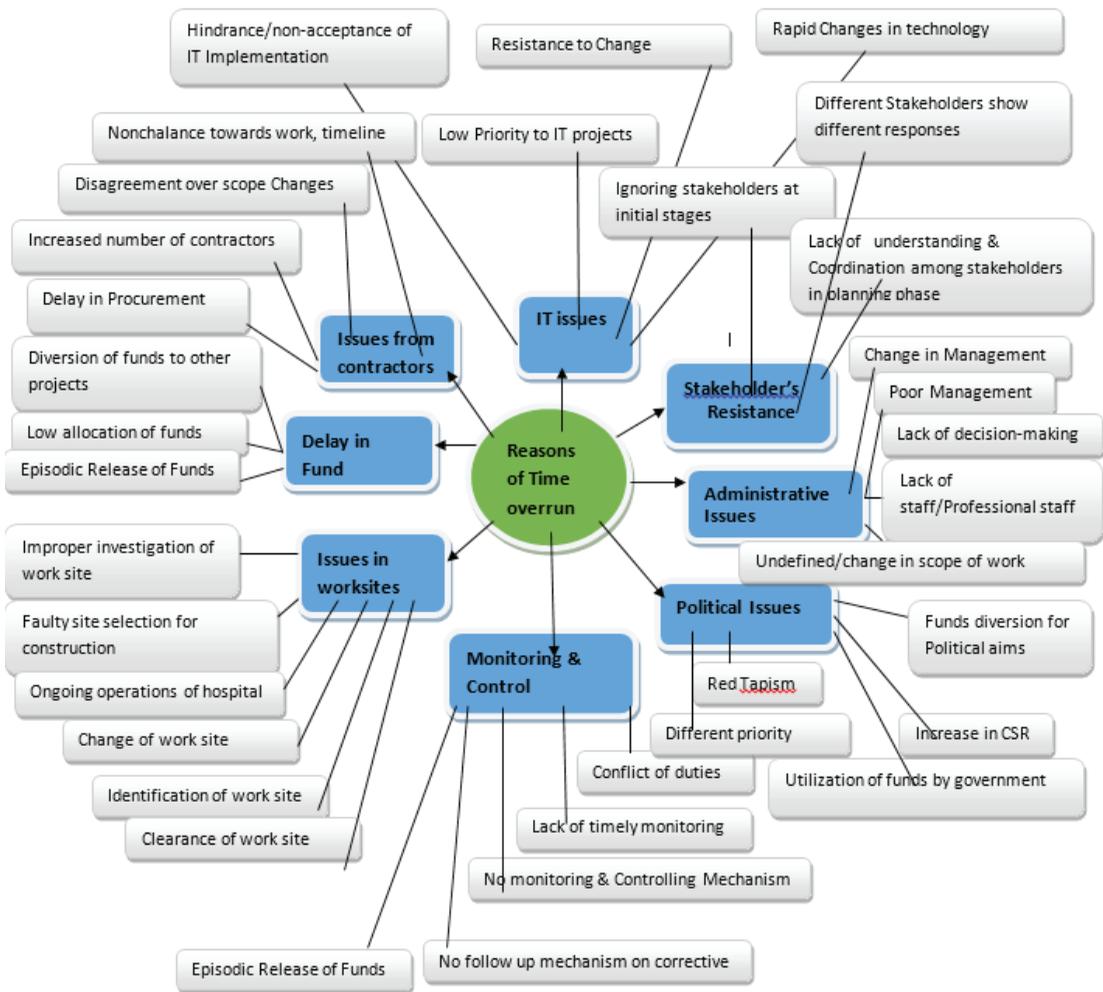


Figure 3: Thematic network of causes of Time overrun

Question No. 1: Why medium and large-scale construction and IT projects mostly end up having time creep?

Different stakeholders show different responses to projects which causes the time to creep. Lack of coordination and understanding among the stakeholders is a primary factor. A respondent explaining the context told,

“R1: Time overrun occurs mainly when there is a lack of understanding between the stakeholders at the time of planning the project because it is supposed to be considered right from the planning phase. The role of the Board of Governors (BOG) could not be ignored in this scenario as they are the ones, who begin the whole drama. The most important is the multiple approaches and multiple feedbacks from different stakeholders in the project”

In addition, Stakeholder's participation in the initiation phases of a project plays a major role in its timely completion. Some stakeholders may remain unnoticed at the initial phases. It may not lead to project failure, but the solutions and outcomes would be better if all the stakeholders are involved. Their involvement in the initial phases allows the intensive exchange of ideas and room for creative solutions.

Administrative Issues

The foremost issue pointed by most of the respondents is the change in the management. A respondent explaining the scenario elaborated,

"R1: Before I elaborate at that this... actually the administrator of the hospital was the initiator of this project and this contract was ended in the initial phase of this project due to which he was not there further to execute it. Another administrator came and his priority was not the IT projects."

In addition, there is a lack of interest and lack of decision making from the management side', which make it delayed. Emphasizing the decisions, the respondent told,

"R7: Top management decisions were delayed and funds did not release on time, due to which it delayed."

Poor management and lack of staff also lead to time extension while Hiring the staff and lack of professional staff is also an issue. A respondent commented on the technical know-how of the staff,

"R2: They lack the know-how of IT equipment. For their decisions, they relied on the technical people that were there."

Moreover, undefined work scope from the planning phase and changes in the scope of work also causes time creep

Political Issues

Governments have different priorities. They give attention to those projects which are important to them and other projects are left behind. A respondent elaborating the issue said,

"R2: Sir this is being affected by the political government. They gain very less from IT projects."

Another issue is the diversion of project-specific funds to other areas for political reasons, while the inter-governmental conflict is also an issue. A respondent describing the issue said,

"R14: primarily, the delay is because of lack of clarity on part of the government and maybe some financial incentives that are considered by the people who are actually In-charge of setting up these institutions and again there are political reasons for the delay as well."

Similarly, the government increases the Composite Schedule Rate (CSR). This causes conflicts as the contractors to start creating hurdles which cause time overrun and the government utilizes most of the fund on their own which causes problems for the contractors

to implement the project. A respondent explaining the role of Government said,

“R5: P&D Department or the Financial Department, the Government usually think that they will be unable to utilize the funds if we allocate the total fund and this will just avoid temping of money in one priority so that is why they know if we surrender fund, so this will affect the total distribution of ADP.”

Often the Government creates hurdle through the distribution of the ADP which causes the time to creep. This distribution worries the contractors and they are unable to implement the project properly.

Monitoring & Control

Monitoring and control is a mechanism for making necessary corrective actions in the project. The administration seems to be least interested in carrying out the monitoring. In specific to administration, the respondent commented,

“R2: Yes, the monitoring plan was there but again could not be followed due to multiple tasks at that time and again the lack of interest by the administration.”

Moreover, there is a conflict of duties as who will perform monitoring activities. Every monitoring body thinks that the other party will do it. In this way, it is never done. On-time monitoring is needed to avoid time creep. Emphasizing the role of monitoring, a respondent replied,

“R13: Yea if a robust monitoring/evolution process system is in place that could timely identify the shortcomings in the project and other bottlenecks. But since the M&E Process is missing here so

Further, there is a lack of corrective mechanism. If there is monitoring in some projects, it does not benefit the project if there is no follow up or corrective mechanisms. However, there is conflict of duties, lack of interest from the administration side, and therefore, no proper monitoring and control mechanism which leads to time overrun in projects.

Worksite Issues

A major issue is the Identification of work site for implementing the project and Improper investigation of the work site from the planning phase causes hurdles in implementing the project. Secondly, there is an issue of clearance of work sites. Pointing to it, a respondent told,

“R17: There are too many reasons for this project. First is site clearance, the second one is underground utilities that is a problem in site, the tunnel is there, the third one is shifting of electrical poles/pipelines and the fourth one is no place was available for material to be dumped.”

Another factor which causes time overrun is the on-going operations of hospitals. The hospitals are working in daily routine and it is difficult for the workers to carry out their activities. One of the respondents related to operating activities commented,

“R8: the main reason is actually the building, in the Heart of the LRH, so there, site

clearance is the major issue because still there is a building in the premises of medical allied ward & in that building health activities are going on.”

Site clearance is a major issue in operational places and can cause time overrun. Change in worksite also results in time delay, while delays in funds also cause time creep. Often, the transfer of allotted funds to other projects causes time overrun. One of the respondents elaborating the issue said,

“R1: It was spelt out but again it was due to some unforeseen reasons that it was compromised. Initially, it was for two years but later it was shrunk to one year due to the ADP freeze because of the floods in the province so all the fund were diverted to that site.”

Low allocation of funds by the project rewarding bodies and episodic release of funds also causes the time to creep.

Issues from Contractor's Side

Contractors also have a role in project delay. If the scope of work increases, the contractors show disagreement in carrying out those activities. Bringing everyone on board is a difficult and time taking task while, the contractors have nonchalance towards work, monitoring and timelines. They are lazy in performing their duties properly. Similarly, an increase in the number of contractors causes confusion as one contractor wants a task to be done in one way while another contractor wants it to be done in another way. It wastes a lot of project's time. One of the respondents commented on the issue,

“R16: Reason can only be when the scope of work is changed. So demand will be to provide financial provision for the contractor to perform the scheduled change in scope of work. By increasing the number of contractor's, a delay occurs in work because work of all these is interrelated with one another.”

In IT project, the first issue is hindrance and non-acceptability. People are much afraid of IT to be implemented. They think it means high monitoring and show resistance to its implementation which causes a delay in its completion. One of the respondents describing the context told,

“R2: Sir, since we are talking about projects been implemented in the health department or health sector, this is a major issue because of the reason that the doctors or the management personnel, since they lack IT knowledge and IT know-how, they feel threatened. Secondly, they feel reluctant to change.”

One other issue that IT projects faces is the administration low priority to it. There are hurdles in implementing IT projects due to rapid changes in technology which contributes to time extension in these projects.

Answer to Research Question 1

Combining the whole discussion, it is evident that medium and large-scale construction and IT projects mostly ends up having time creep due to resistance from the stakeholders. They are not taken on board in the initial phases; administrative issues e.g. change in management, lack

of administrative interests, and lack of decision making. Political issues, issues in monitoring and control of the project. Worksite issues, delay in fund release, issues from contractor's side and IT related.

Q2: Why medium and large-scale construction and IT projects mostly ends up having a cost overrun?

One of the reasons behind cost overrun in IT and construction projects are inflationary effects. According to a respondent,

R4: The project cost increased you know due to all the fluctuation in prices with time.”

Fluctuation in the market prices can cause cost overrun. Revision in the scope of work also causes cost overrun. Similarly, there is alteration in Composite Scheduled Rates (CSR). Further, Administrative issues cause both time creep and cost overrun. The first reason is the lack of ownership in the project. There is a lack of monitoring and lack of implementation of corrective measures as well. In some projects, there is a monitoring mechanism and the committee used to give them corrective measures but the administration does not implement them. This escalated the cost of the project. Pointing to corrective measures, a respondent commented,

R10: It is unfortunate sir, we write them regularly, we bring this in their notice regularly but corrective measures are not taken time and the reason that projects are delayed for years and years and because of that cost also increase and then it is a burden. I give the example of Medical and allied ward which was started in the previous government and restricting on the approved cost project was 962 M something and now that cost has reached 3.7 Billion.”

Another issue is the complexity of tender processing. It is hectic and time taking in Government Departments. Contractors quote different prices, whereas the administration has already estimated the cost which doesn't match the quoted prices. The administration had to go for low tendering rates which are compensated with low-quality raw materials. This low-quality raw material is eventually replaced by a good quality material which escalates the cost of the project.

Poor cost estimation

There is no proper mechanism for cost estimation which results in low costing, and thus the project cost overruns. In some cases, error in costing causes cost overrun. The consultants make a raw list for the sake of approval. Later in the implementation phase, it is found to be more than mentioned in PC-1. A respondent describing the issue told,

R5: Yes, I think there are two to three reasons; one is that some time the contractor starts with a low budget and you know but then they submit the revise just to win the bid for that purpose they offer very low price and when they start execution they claim for the escalation.”

Sometimes the contractor changes the scope of work while sometimes the management changes the scope of work according to their new demands. This change in the scope of work changes the cost of the project and hence the project causes increases.

Funding Issues

Funding factors can also cause cost overrun in projects. It may be due to improper costing. The initial cost of the project mentioned in PC-1 is something different than what the project actually cost. This is because the consultants and contractors do improper costing. One of the respondents explaining the context told,

“R5: The establishment of Causality block in KTH was first time approved in 2012, I think in October, but unfortunately as your question is the cost overrun and the problem was that the cost scenario was not properly devised.”

Similarly, the project overruns its calculated cost because more funds are required for additional work. In some projects, the design is changed which changes the scope of the project and hence increases the cost. Delay in allotment of funds for the projects also escalates the cost. Similarly, in some of the projects, there is a change in worksite which increases the cost of the projects.

Answer to Research Question 2

Projects overrun the estimated cost due to poor cost estimation by the contractors. For winning the bid, contractors make a rough estimation and once they win the project they demand more funds. Moreover, other funding issues which escalate cost are the change in the worksite and funds for additional work. Inflationary effects and administrative issues also cause projects over cost.

Q3: How construction and IT projects differ from each other on the basis of the factors/ phenomenon resulting in time and cost creep?

In IT projects there is hindrance and non-acceptability. People show resistance to its implementation as they think it means high monitoring. Sometimes people are not adaptive towards change. A respondent elaborated concerns about IT projects.

“R2: Actually change is something to which we people are not used to. People working in this particular hospital might be thinking or predicting that this change will lead to a more comprehensive monitoring mechanism thus leading to a more comprehensive decision making. So it is very much possible that people in this hospital felt threatened and that's why they were reluctant to accept this change.”

Similarly, there is a lack of professional staff that could carry out and implement the project. A respondent related to professional staff commented,

“R2: Sir, since we are talking about projects been implemented in the health department or health sector, this is a major issue because of the reason that the doctors or the management personnel since they lack IT knowledge and IT know-how, they feel threatened. Secondly, they feel reluctant to change”

Another issue that causes cost and time creep is the administration's low priority to IT projects. This lack of interest cause delay in approving and implementing it. There are rapid changes in technology when it's time to implement an approved IT project, its technology is changed.

Answer to Research Question 3

There are multiple reasons causing cost overrun and time overrun in medium and large-scale construction and IT projects. Most of the factors pertaining to administrative, planning, funding and staff competencies etc. are almost similar. However, there are certain causes which are unique to IT projects leading to time and cost overrun. These are resistance by the stakeholders for change, lack of understanding on the part of consumer about the benefit of the project and rapid change in the technology.

DISCUSSION AND CONCLUSION

Administrative issues

Public sector organizations are hierarchical in nature and Implementation of any project requires cooperation on each level among different departments and personnel at different levels and cadre. The analysed projects reveal that change in management, lack of interest from the administration side, lack of decision making, poor management, insufficient and professional staff, undefined work at the planning phase, and not showing ownership to the projects from administration side's cause time overrun. Similarly, lack of ownership to the project, tender processing, issues in contracting, and lack of implementing coercive measures also causes' cost overrun.

Resemblance can be seen among the factors revealed by analysis and the factors present in the literature e.g shortage of skills is highlighted in the study of Zidane and Adersen(2018). Ali, Smith, Pitt and Choon (2012) Administrative issues such as shortage of labour, construction mistakes, co-ordination problems, material shortage and study by Memon, Rahman and Azis (2012), identifies miss management and labour resources as a source of time overrun. Except for other factors, one of the reasons behind overrun is coordination failure (Hinze & Wiegand, 1992). Lack of coordination failure and miss management is highlighted by Morris (1990) as well. While, Al-Najjar (2002) highlights technical incompetence, delays in decision making by the government, inadequacy in planning as a source of it. According to Mansfield, Ugwu & Doran (1994), unclear definitions of contract terms is also one of the factors behind overrun.

Funding and Political Issues

According to the analysis, episodic release of funds, low allocation of funds, more funds for additional work, delay in allotment of funds, transfer of allotted funds to other projects are some of the factors which cause cost and time overrun. The finding of these factors is not alien to the factors already highlighted in the literature. Akinsiku and Akinsulire (2012) opine cash flow difficulty and failure of payment causes overrun. Ade-ojo and Babalola (2013) point out delay in payments, and financial incapability out of other factors as a reason for it. Financial difficulties are highlighted by Zidane and Adersen(2018) as well. Similarly, it is also identified by Hinze & Wiegand (1992) as well. Morris, 1990, and Al-Najjar (2002) have also shown the same findings.

The analysed projects show that diversion of project-specific funds to other areas for political reasons is another underlying factor for time overrun in the public sector. The inter-governmental conflicts and their interests, the provincial and federal governments having issues

with each other create hurdles, which causes the time to creep. Each government wants to promote and complete its own prioritized project. While, the literature also reveals that bad economic and political situation has been a major issue (Enshassi, Al-Najjar & Kumaraswamy, 2009). Political instability is one of the causes of overrun (Alinaitwe, Apolot & Tindiwensi, 2013). The findings of Khan et al. (2015) also confirm political instability and changes in government policies as a reason behind it. In addition, Role of politics is also evident in the study of Munir, Ahsan & Zulfqar (2013) as well.

Monitoring & Control and Work Site issues

It is evident from the analysis that there is no proper monitoring and control mechanism. The administration is not interested in carrying out monitoring. There is a conflict of duties that who will perform monitoring activities. In addition, these activities are not done on time. Hence, the projects face the phenomenon of overrun. While, the findings of Alinaitwe, Apolot & Tindiwensi, (2013) highlights the lack of monitoring a factor behind overrun. According to the analysis, another factor of overrun is the issue with the worksite. A big issue is worksite identification for the implementation of a project. Similarly, other issues are an improper investigation of the worksite from the planning phase, clearance of work sites, and change in the worksite. With respect to the findings of the analysis, the literature also shows that design error and poor site condition can lead to overrun (Ade-ojo & Babalola, 2013). Issues with worksite are highlighted in the study of (Akhund et al., 2018) as well. Al-Momani (2000) is also of the opinion that out of other factors, worksite conditions can lead to overrun.

Inflationary Effects and Poor Cost Estimation

According to the analysis, the first factor which causes cost overrun is the inflation itself. Similarly, alteration in Composite Schedule Rate (CSR) is also one of the factors. Inflation causes fluctuation in the market prices of materials which result in cost overrun. Similar findings are evident in the literature as well. According to Khan et al., (2015) one of the causes for time and cost delays are unaccounted inflation rates. The same is highlighted by (Haslinda et al., 2018) as well. An investigation by Akinsiku and Akinsulire (2012) shows that, in addition to other factors, escalation in cost of material causes overrun, while price fluctuations as a cause of overrun are highlighted by Mansfield, Ugwu & Doran (1994) as well.

The analysis further reveals that one of the major causes of cost overrun is poor cost estimation. This cause is evident from the study of (Johnson & Babu, 2018) as well. The estimations by consultants and contractors are found to be different from actual. One of the reasons is improper cost estimation. Another factor is the initial low-cost estimation by the consultants to win the bid. Similarly, changes in the scope of work also change the cost of the project which leads to cost overrun. With the resemblance to the analysis, the literature also provides such explanations. According to Mansfield, Ugwu & Doran (1994), one of the major reasons behind overrun is inaccurate estimates. In most of the cases, cost estimation is taken wrong and the ranking of the projects in terms of their viability is also inaccurate, consequently, unimportant projects are implemented which results in loss of resources. Different accounts for this problem have been identified by (Morris, 1990; Odeck, 2004; Bruzelius, Flyvbjerg & Rothengatter, 2002; Flyvbjerg et al, 2003). The most common factors for this inaccuracy in the cost estimate are forecasting errors, inadequate data and lack of experience. Optimistic forecasts due to cognitive bias and strategic behaviour along with strategic misrepresentation,

deliberate under-estimation of cost with a view to enhancing the chance of winning the project are additional variables.

Issues with Contractor's, Stakeholders and IT

The analysis shows that the contractor's delay in procurement of the materials causes time overrun. Increase in the number of contractor's cause's confusion as one contractor wants a task to be done in one way whereas another contractor wants it to be done in another way which wastes a lot of Project's time. This issue of excessive subcontracting is highlighted by (Bajjou & Chafi, 2018) as well. In addition, they have also nonchalance towards work monitoring and timeline which delays projects. One of the issues is the disagreement over the changed work scope. According to Al-Momani (2000), the late delivery of materials is one of the reasons behind the timely completion of the projects. Similarly, delay in supplies also causes time overrun (Akinsiku&Akinsulire, 2012).

One of the factors in time overrun of a project is the resistance from stakeholders. The analysis makes it clear that different stakeholders show different responses to the project which causes time overrun. One factor is the lack of coordination and understanding among stakeholders, while the most important factor is ignoring the stakeholders at initial phases which make them less interested in the project. Similar to the analysis, the literature also highlights that lack of co-ordination among stockholders can cause time overrun. While, Al-Najjar (2002), argues that issues of coordination and communication between the stack holders can cause cost overrun. Co-ordination issue is evident in the study of Umar(2018)as well.

In IT projects, the issue is hindrance and non-acceptability of its implementation. Similarly, another reason is giving low priority to IT projects by the administration while a rapid change in technology is also found to be a factor for the time delay. In comparison to constructions related projects, most of the factors pertaining to administration, planning, funding and staff competencies etc. are almost similar. However, there are certain factors which are unique to IT projects leading to time and cost overrun. These are resistance by the stakeholders for change, lack of understanding on the part of consumer about the benefit of the project and rapid change in the technology.

CONCLUSION

Different factors leading to cost and time overrun in specific to construction and IT projects are Administrative Issues, delays in fund release, Political Issues, Monitoring & Control, Work Site issues, Inflationary effects poor cost estimation, Issues from contractor's side, Stakeholders issue and IT issues. The administrative issue includes a change in management, lack of interest from the administration side, lack of decision making, poor management, insufficient and professional staff, undefined work at the planning phase, of ownership to the project, tender processing, issues in contracting, and lack of implementing coercive measures.

Funding issues are related to the episodic release of funds, low allocation of funds, more funds for additional work, delay in allotment of funds, and transfer of allotted funds to other projects. Political issues include the inter-governmental conflicts and their interests, and interest of each government to promote and complete its own prioritized project. While, monitoring and control include lack of proper monitoring and control mechanism, lack of interest of

administration in monitoring, conflict of duties related to monitoring activities and on-time monitoring activities. In addition, issues related to worksite includes, identification of worksite for implementation of the project, improper investigation of the worksite from the planning phase, clearance of work sites, and change in the worksite.

Inflationary effects include inflation itself, Alteration in Composite Schedule Rate (CSR) and fluctuation in the market prices of materials. While, issues related to Estimation include, poor cost estimation, the difference in estimations by consultants and contractors, improper cost estimation, initial low-cost estimation by the consultants to win the bid and changes in the scope of work. Issues from the contractors' side are: delay in procurement of the materials, Increase in the number of contractors, nonchalance towards work monitoring and disagreement over the changed work scope. In addition, issues from stakeholders' who causes overrun are resistance from stakeholders, lack of coordination and understanding among stakeholders and ignoring the stakeholders at initial phases which make them less interested in the project. Moreover, in IT-related projects, the issues were hindrance and non-acceptability of IT implementation, low priority to IT projects by the administration and rapid change in technology. However, certain factors which were unique to IT projects leading to time and cost overrun were resistance by the stakeholders for change, lack of understanding on the part of consumer about the benefit of the project and rapid change in the technology.

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