

Analyzing the Cause of Delays and Its Effect on Large Construction Projects: Case Study of UK

Construction Industry

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Introduction

Construction industry worldwide is growing on a fast pace in order to support infrastructural and economic development in a country; however the delays in the construction project are a big concern. Late completion of a construction project results due to construction delays. Projects of construction can be saved from any kind of postponements if identification of causes is made appropriately. Hence, the purpose of this research is to recognize the factors that generates delays in projects of construction, impact of the identified factors on the construction project and methods or strategies that may reduce or eliminate the construction delays.

The construction delays take place around the globe not only in the United Kingdom (Haseeb et al., 2011). Postponement in construction can be defined as the completion of a project later than the period specified and agreed upon by the concerned individuals or parties. Delays in the construction projects are considered as a common norm these days. As per Afshari et al (2011) the top twenty causes of delay within the construction projects which are also classified under the non-excusable delays which a client does not accept and these delays also lead to huge damages and losses to the company.

As per Kikwasi (2012), continued delays in the construction projects negatively impact the construction projects. Delays are considered the biggest challenge during the execution of a construction project and also serve as a potential risk to the parties. As per the study conducted by Mahamid (2011), there are several factors responsible for the delay of construction projects and also highlighted the need of training for the improvement of the skills of a project manager.

Whereas studies on impacts and reasons of delay in construction abound, there is dearth of findings on mitigation measures to address these delay causes and effects. Mahamid (2011), investigated parameters impacting time delay in projects of road building and recommended training programs to improve managerial skills of project parties. There are twenty top causes of non-excusable delays in construction projects which are defined as delays that are not accepted by the client and lead to liquidated and ascertained damages (Afshari et al., 2011).

Context of the study

Construction projects nowadays, are differentiated and categorized with regards to the standards incorporated technological advancement, variety of parties as influencers (owners, consultants and contractors) and most importantly the frequently changes adapted in the design and construction. Moreover, many projects are executed in intrinsic unpredictabilities and complications related to physical, economic and financial situations. Such conditions have made completing projects on schedule a difficult task to accomplish, often leading to claims on cost compensations and time extensions. This eventually leads to delay in the completion of the project.

It is investigated by several researchers and also highlighted that the delay in any construction project has many negative results and implications on the entire construction project. The delay in a construction project may cause the owner to bare extra costs in terms of labor, material and overheads that will be utilized. Hence, it is required to establish a plan and implement accordingly for the construction or any other project to avoid such issues.

Significance and Rationale

As the economies are progressing on a fast pace, the industries are also evolving in order to meet the continuous changes in the environment. Similarly, the construction industry is also striving hard towards the success worldwide. Delays within the completion of construction projects are a worldwide dilemma. The projects' completion takes place far beyond the forecasted time due to nature differences, size variations, complexity in the design and diagrams including technological advancement. The delay within the completion of the construction project has an adverse effect on the clients and contractors as well since both employ extra time, efforts and costs. It is also evaluated that the poor or ineffective management of a site location may also result into delay and timely completion of the construction project. As identified by Motaleb and Kishk (2010), five important factors that lead to delay in a construction project include changes in the design orders, decision by clients are taken slowly, lack of expertise in the clients' representative, huge capital requirements for the construction project and finally poor and late delivery of the raw materials. Haseeb et al. (2011), have identified the delays caused by the sub-contractor as the main source of the contractor associated issues in the construction projects.

The lack of equipment and technological advancement is regarded as a major cause of delay by Wei (2010). As per Abiero (2010), the cause of delay may also be resulted due to delay in the payments for the work completed and even advances to them for the progress of work in the construction projects. Memon et al. (2011) have regarded the delayed payments to the contractors which result into disputes between the labor and contractor, destruction of the property, increased turnover of the labor while the timely payment to the labor leads to increased motivation of the employees and willingness to work efficiently (Raj and Kothai, 2014).

Construction projects can be regarded as a successful project when completed within a specified time frame, assigned budget and maintained quality (Owolabi et al., 2014). Delay in the completion of the construction projects has become a critical aspect worldwide and leads to increased cost spent on the construction which is divided with regards to the extended time, productivity of the employees, interruption in the work, loss of revenue and complete project abandonment. Even though the developed countries have a lot of resources available still we can witness that the hold-ups within the construction projects are being encountered in developed countries more as compared to the under developed countries.

As noted by Faridi et al. (2011), the delay in the construction project completion has become a leading and recurring global problem. There are several other factors highlighted in the literature review which need to be addressed by the company and its project managers for the effective and efficient utilization of the available resources in order to complete a project. Non-compliance of the standards of any project may lead to delays in the progress of the construction project. As per the study conducted by Mohammad & Isah (2012) which stated that in the developing countries the delays within a construction project usually occur in the early stages of the construction project. It is also recommended that a proper communication mechanism should be utilized by the project managers and the employees in order to address the required changes in the most efficient manner as there are several moments when the design, material or any other requirement details are changes by the owner which needs to be incorporated. Moreover, the literature also suggests that the delays are resulted due to negligence from all the categories (as mentioned in the table) involved in the building project.

Research Aims & Objectives

The primary aim of this research proposal is to identify and also study the factors behind the delay in the construction projects and also their impact on the construction projects in the United Kingdom construction industry. Following are the objectives of the study:

- To identify the reasons of delay in the construction projects in the United Kingdom construction industry
- To study the impact of delays on the construction projects in the United Kingdom construction industry
- To recommend strategies and methods to reduce the delay in the construction projects in the United Kingdom construction industry



Research Questions

The research questions prepared for the research are as follows:

- What are the reasons or factors behind the delay in the construction projects in the United Kingdom construction industry?
- What is the impact of delaying factors on the construction projects in the construction industry of the United Kingdom?

Literature Review

The construction projects help in the development of the company with regards to better infrastructure, economic development and providing employment opportunities. The Brexit has negatively affected the entire economic conditions of the United Kingdom and also affected the

industries within the United Kingdom. The United Kingdom needs to work as aggressively as possible to overcome the economic crisis.

As stated by Hamzah et al. (2011) the extra time exerted by the labor on any project negatively affects the workflow and also reduces the productivity level of the labor. Moreover, the contracts that are completed beyond the time specified by the parties in the contract lead towards excessive use of budgets, claims based on the contracts and also the rejection for a project (Abedi et al., 2011a). Several practices are taken into account even by the government in order to overcome such issues in the project completion which include involvement of the private sector in the development of the government institutions, hiring of much experienced and skilled staff and labor and also the project managers for the effective management and completion of the projects. However, the time management with regards to the construction industry is still poor and requires a lot of maintenance for the improvement (Embong, 2011).

As per the study conducted by Ramabathan et al. (2011), the scarcity of the skilled labor, material of high quality and equipment may result into delays in the completion of the project when there is high demand of all the mentioned factors. If such situations are neglected by the supervisors of the project it may have negative impact on the progress and also completion of the project. Moreover, they also added that it is very important to hire skilled and experienced consultants and contractors as any negligence by them may also result into delayed completion of the project which shall increase the costs being employed on the project. As stated by Mahamid (2011), the lack of skilled and experienced labor may result into low level of productivity, non-compliance with the standards, overtime, high costs in terms of labor and machinery both; therefore it is vital to report the labor concerns and solve them immediately as if these issues prolong they will affect the overall progress of the project and also its completion.

In various studies the factors highlighted by the researchers which may result into delayed completion of the project included availability of high quality material, Availability of equipment in the domestic market areas, lack of material delivery schedule, delays in the approval of the design and drawings, climatic changes, fluctuation in the cost of production factors, Delays in the contractual agreements for the land and property deals, long distances between the site locations, improper logistic planning and redoing of the work due to non-fulfillment of the standards. In order to reduce and eliminate the adverse impact of the aforementioned factors it is significant for the managers of projects and companies to address each of the factor and design, plan and implement strategies in a way that may help in the proper and timely completion of the construction project.

The factors highlighted in the previous researches conducted by Mahamid (2011) and Kikwasi (2012) are as follows:

Categories	Causes
Owner	Slow and week decisions Interruptions in the work Late approval of designs Late revisions on mistakes Delays in the furnishing and delivery of the site to the contractors Delay by the owner in the financial payments for the completed work Variation in the scope of the construction project

	<p>No SMART objectives for the projects</p> <p>Unnecessary interference of the owner in different areas of the project</p>
Consultants	<p>Incompetent – No experience of consultancy</p> <p>Delays in approval of the design and drawing and also the samples (material)</p> <p>Mistakes in the designing</p> <p>Inappropriate designs and drawings</p> <p>Lack of quality management tools</p>
Contractors	<p>Huge capital requirements</p> <p>Inadequate site supervision</p> <p>Inefficient planning</p> <p>Inefficient schedule designed for the project</p> <p>Errors in the work resulting into rework</p> <p>Delays by the sub-contractors</p> <p>Lack of experience and skill</p>
Material	<p>Lack of availability of sufficient material for construction</p> <p>Material delivery delayed</p> <p>Variation in the material specifications during the project</p>
Labor & Machinery	<p>Unavailability of skilled labor</p> <p>Lack of labor</p>

	<p>Poor productivity of the labor hired</p> <p>Lack of proper equipment</p> <p>Labor laws</p>
Project based	<p>Improper Surface/ground/ foundation conditions</p> <p>No access to basic utilities at the site location</p> <p>Occurrence of accidents during the project</p>
External Environment	<p>Climatic changes</p> <p>Environmental problems</p> <p>Imposed laws by the Government</p> <p>Permit collection from the government</p> <p>Delays in the final inspection of the project</p> <p>Communication barriers between the management and the labor</p> <p>Fluctuation in the currency of a country which effects the cost of labor and material</p> <p>Political conditions of the country</p>

Research Design & Methodology

Research Design

The three types of research designs are widely used by the researchers which include quantitative, qualitative and mixed method. This study will be conducted based on the quantitative design as it shall identify the factors responsible for the delay and also their impact

on the construction projects within the United Kingdom construction industry. Moreover, the study shall provide an in-depth analysis of the factors responsible for delay and their impact on the construction projects. As stated by Flick (2015), the use of quantitative design shall provide consistent results of the collected data as the data gathered will be quantified using statistical tools.

Types of Investigation

There are three types of investigation methods widely used by researchers which include Exploratory, Explanatory and Descriptive (Wyk, 2012). The explanatory investigation method will be used for this study since this is not a newly developed area of research and this research shall also study the relationship and impact of the independent variables which include the factors responsible for the delay on the dependent variable which include the construction project.

Data Collection Method

The data is collected through two different types of methods which include primary data and secondary data. Primary data involves collection of data for the first time from the key respondents of the research which is done by using different tools and techniques which includes survey questionnaires, interviews, focus groups (Creswell, 2012). While, the secondary data includes the data which is readily available for the research which includes the statistics, annual reports of the company, literature review etc. This research will use the primary data collection using the survey questionnaire to gather data from the respondents of the research.

Sampling Method and Sample Size

There are two types of sampling methods used by the researchers which include probability sampling technique and non-probability sampling technique. The researcher will use convenience non-probability sampling technique as it will help the researcher to collect data from the respondents who readily volunteer for the purpose and this technique is cost effective also (Saunders et al, 2012). The sample size selected for this research would be 100 respondents which will include employees and managers at different levels of construction project processes.

Data Analysis Plan

For the purpose of analyzing the collected data the statistical tools are used by the researchers. In the current research the SPSS software will be used by the researcher to critically analyze the data collected and evaluate the results. This research will use the correlation and regression analysis techniques to test the hypothesis designed for the research and also estimate the effect of the independent variable on the dependent variable of the research.

Hypothesis and Variables

The hypothesis designed for the proposed study is as follows:

- Ho: Project delays has a significant impact on the construction projects
- H1: Project delays does not have a significant impact on the construction projects.
- **Independent Variable:** Project delays
- **Dependent Variable:** Construction Projects

Accessibility Issues

Accessibility issues may serve as a hurdle in the secondary data collection process and may also limit the access of the researcher from the retrieval of specific studies based on the topic of the research. Moreover, budget constraints may also result into limited access to the publications that have low subscription fees or are available free of cost and the literature that requires high fees will not be considered part of the research.

Ethical Considerations

A researcher needs to comply with all the ethical issues while conducting a research (Matthews and Ross, 2014). The research will be conducted using the primary data; therefore the respondents should be informed about the objective of the research, the respondents' personal data shall be kept confidential and shall not be disclosed under any circumstances. Moreover, the primary data collected for this research shall not be used in any other research without prior consent of the respondents.

Research Limitations

The researcher may encounter several limitations while conducting the research some of which are stated as follows:

- **Budget Constraint:** May be regarded as a biggest constraint as lack of budget may limit the access of the researcher towards paid form of secondary data and also other requirements of the research.
- **Time Constraint:** In case of limited time, the larger sample size may not be selected for the research purpose.

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