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THE RECIPROCAL EFFECTS OF TRIPLE CONSTRAINTS ON INFRASTRUCTURE PROJECTS: STAKEHOLDER'S REFLECTION IN VOLATILE SITUATIONS

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ABSTRACT

Adequate management of the triple constraints that majorly affect infrastructure project is at the forefront of all the variables that determine success and failure. Organisation must handle with care the triple constraints to achieve success in their projects from initiation to commissioning. Subsequently, failure to maintain balance in dealing with the constraints will not only result in delays but can immensely contribute to failure of the project. Preliminary investigation revealed that many projects have collapsed and some abandoned in the Eastern cape in South Africa due to managers inability to manage these variables. This study sought to establish the reciprocal effects of the triple constraints on infrastructure projects. The qualitative research method was used by the researchers. The study circumvents on three (3) distinct infrastructure projects in the in land of Eastern cape, Purposive sampling was used and interviews schedule was employed to collect data from the selected sample. The findings revealed that triple constraints (costs, time, and scope) as the main pillar of any projects, are pivotal in determining project success and must be heeded, studied, and managed aptly during planning and implementation phase of a project. Failure to pertinently maintain equilibrium in this regards can lead to failure in projects, even if other segments are on the highest standing. In a nutshell, the project team must comprehend and control these constraints to avoid/minimise misfortunes.

Keywords: Triple constraints, Infrastructure Project, Time Management, Cost Management, and scope Management.

INTRODUCTION

Project is a temporal event that aim to produce unique services or product and this bring the attention that project operation has specific time to be completed in every project. The name project occur the minute organisation must manage the accomplishment of the project based on time, cost and scope which are referred as "triple constraints". These triple constraints need project management from all team members and stakeholders, and which needs to be treated as the golden triangle (Collins, 2016). The need to understand the importance or the quality of triple constraints lead to the success of project accomplishment and project need to have clear objectives, strategies for proper completion based on project management (Clements, 2016). Project management is defined as the planning, coordinating, organizing controlling, and leading all resources with the aim of accomplishing the objective of the project (Mbeche, 2018).

The proper accomplishment of project objectives can be constrained by many factors such as schedule, quality, scope, budget, resources, customer satisfaction, risks, and stakeholder support (Natchayangkun, 2019). The triangle of cost, time and scope are the triple constraints which every project needs to achieve its balance because they can determine the success and failure of the project. Project managers have task of ensuring that the three dimensions are success, all deliverables of projects are within budget, on time and meet the quality requirements of the stakeholders and sponsors. There are many factors that stand in the success of projects, but cost, time and scope are the core constraints in projects (Olima & Serrador, 2017). Griffin and Babin (2015) added that project performance can be defined as time, costs and scope, and these constraints are also known as triangle constraints since are related to each other and involved trade-offs.

There are specific requirements needed for project management to accomplish the project successfully as indicated by previous studies. The requirements for project management there is a need for proper schedule, that are accepted by stakeholders, task related works, stakeholders, and the project managers ability to reach the objectives of the projects (Thompson, 2016). The high-quality performance from project management will assist in indicating in solving the challenges during the operation for the projects. Many risks can come from unsuitable costs, scope, and timing. Furthermore, during project management the improper costs of materials can have an effect in the project completion (Kiridena, 2016)

PROBLEM STATEMENT

There are many problems that are facing projects which results to the projects being abandoned. The failure of many projects such as maintenance, improvement and completion of projects are largely linked to the triple constraints (Kerzner, 2017). Many projects have collapsed or being poor due to the insufficient funds and many delays in the projects. There are many barriers in projects which are caused by poor quality, over cost and waste of time, this results to poor proper planning, including the specific time needed to complete the projects and the estimation on cost which can be underestimated or overestimated, which lead to delay to the complication of the project or incomplete tasks (Lundin, 2015). When managers fail to execute effective time, cost and scope that results to poor performance or result to the project to fail (Abdulla, 2016). Scope creep can occur to any existing project which bring frightened which decreasing satisfaction, cause the project to not meet the expected outcome and wasting money. Many projects are affected by it which make the stakeholder and project team to be frustrated.

OBJECTIVE

To establish the reciprocal effects of triple constraints on infrastructure projects.

DEFINITIONS

Cost

The cost of a project is the amount of money spent from the beginning of the development phase until the project is completed (Jaselskis, 2019). The project to be developed it relies on costs most are variable costs which include: labour rates, work packages, mitigating, resources, and funds

used to control factors that results to produce costs variances. Indirect costs, cost contingency, costs escalations and risk management. These costs comprise of fixed and variable costs which also consider the productivity and worker skills and these costs are counted utilising different project costs estimate instruments (Ogunlana, et al., 2016).

Scope

The iron triangle's final aspect is scope, which refers to all the activities that must be completed to indicate and deliver a project. Requirements that must be met to get the desired outcome. The general goal of the project and a detailed of what project need to accomplish at the end and full description what need to be done or accomplish by the project (O'Connor, 2018). The end product's quality is an important aspect of scope, and the overall quality of the project is determined by the amount of time spent on tasks. Some tasks or activities may take a certain amount of time to do properly, but if given extra time, they could be completed exceptionally well. Quality can have a substantial impact on time and expense throughout the life of a large project (Soeharto, 2019).

Time

The time of a project is the another factor of determining quality in a project, which confirms the completion of a project within a given time frame. Several strategies are used to estimate the time that is needed to provide the deliverables for analytical purposes (Fortune & Evaristo, 2017). Identifying tasks is required to create the deliverables documented in a Work Breakdown Structure (WBS), is one way. Each task's work effort is estimated, and the sum of these estimates is used to calculate the ultimate deliverable estimate (Kerzner, et al., 2015). There is prioritisation of tasks and the dependencies that exist between tasks are being identified and all this information is documented in project schedule. The overall of the project can be affect by dependencies between tasks of the projects based on availability of resources. Time is not the same as cost categories and resources (Alarcon & Ashley, 2020).

THEORETICAL UNDERPINING

The theory of constraints developed by Israeli physicist Dr Moshe Eliyahu Goldratt under the book name as *The Goal* which was his first publication in 1984. The theory provides the best solution in the management of production, and this theory is popular known as the 'series of independent processes' which focus on improving the system that is used. The theory indicate that positions and processes need a proper supervision to work effectively. The important part or task in the system or process need to be given proper consideration with the aim of overviewing the whole system (Wyngaard, 1984). Every company want to maximise its profit through satisfaction of customers which is possible through quality of product and fair price, from this view obstacles is the barrier for the company to achieve its objectives. Lawrence (2017) explained that constraint is anything that stand in the way for achieving the goals as set. To ensure success or improvement in the process monitoring and control of constraints is crucial. The identification of constraints and managing them is the start of improving the process and control of constraints is needed to avoid negative results, since control, and monitoring results to positive performance. According to Kerzner and Johnson (2017) change in one constraint must be avoid regardless of the amount of

change, because one change will affect other constraints which result to the disruption of the whole process or system.

Appropriate control of triple constraints provides better opportunities for business, and it provide better effect in the performance indicators of the business (Norrie & Herroelen, 2015). Full control triple constraints ensure the success of the system, while imbalance of these constraints provide high chance of the failure of the process or system. In all systems constraint must be controlled to avoid imbalances to ensure that success is guarantee (Leybourne, 2020). Anderson (2016) communicated that manageable system guarantee the achievement of the goal but, the constraint will always be there it does not matter the number. This theory is appropriate to this paper since Davies (2016) indicate that all projects function proper with the boundaries three constraints which is scope, time, and cost. While Bergeron (2018) concluded that any change in one constraint always affect the remaining two constraints and these three constraints are attached to each other, achieving them is the success of the task or project.

LITERATURE REVIEW

All boundaries that are important to transport the success of the project are always experienced challenges (Warren & Collyer, 2019). Todhunter (2019) says that triple constraints are popular and respected tools for success and signifying the relationship between major characteristics of a project. The triple constraints need to be continuously monitored, controlled, and balanced by the project team to ensure the projects' success because of the challenges that may raise. These constraints determine the success of the project controlling and monitoring, which ensures that the project is delivered on promised schedule, meets the requirements as per agreement and within the budget (Koppensteiner, 2018).

Sonderlund and Canonico. (2016) state that to judge the success or the failure of the project it is important to steady stream of signals that: the scope (specifications) of the project was met, withing the budget (cost) and according to specified time. Turkulainen (2015) added that as the project need to be completed based on agreed scope, time and cost these constraints need to be not more or less. However, Todorovi'c (2020) argued that triple constraints are not the only way to measure or assess the success of the project, but time, cost and scope are the dangerous constraints when one changes since is have spill over effect to other constraints. Project managers may experience many challenges during the execution of the project, but triple constraints need project team to keep an eye on them to avoid the failure of the project (Vladimir, 2019).

Likewise, in South Africa normally execution of project such as construction projects, land development projects and building project most of them are not completed within budget (cost), schedule (time) and scope (specification). Many projects are being started but not completed because of the imbalances in triple constraints (Maltzman, 2015). Whitney and Kruskal (2017) indicate that many projects are not completed mostly because of the budget which will results to not meeting the required scope which makes company to quite the project before completion.

The application of knowledge and strategies ensure that trades offs are managed or “triple constraints” between scope (specification), time and cost are identified as project management as defined by the Project Management Institute (PMI). For a project to be successfully complete, all project deliverables need to reach all the requirements (Hotelling, 2018). To produce better outcomes, project manager must make decisions that ensure that triple constraints are balanced or aligned with budget, within schedule, and all requirements are met. The reason for constraints to be balanced is because they are interrelated. Budget normal can determine the deadline of the project, while deadline can determine the performance of the project (Mancinelli & Zoli, 2018).

According Oinarov and Musara (2017, p. 10) “The variations of material prices, cash flow and economic problems experienced by project managers, lack of project resources, breakages of communication among the involved parties, mistaken project planning and scheduling by project managers are the most reasons for projects to underperform/overrun in terms of budget whereas regular plan modifications and the client interferences being the slightest factors to affect the project budget performance”. The project is normally affected by the external environment factors such as economic factors when the is change in prices of that projects needs to buy to accomplish the project. The economic factors end up increasing the total budget of the project and technical reasons results to the increase in cost due to incorrect data collection (Silvius, 2017).

The extra work that was not part of the original scope results to extra costs to occur since the scope has changed, which needs more time to accomplish the projects. The extra work in the project some needs an intervention of sub-contractors to perform some of the work, which change the allocation of the budget (Farioli & Ness, 2019). Aarserth and Ries (2018) state that in case where project is extended due to the change in scope the contract of the sub-contractors and workers in the projects need to be extended, that means extra costs. Where scope change or extra work is added to the original work, new skills may be needed to accomplish the additional work which require extra costs and extra resources such as new machines and material (Anabela, et al., 2019). The extra work needs the project team to revise the plan in terms of schedule which adds some extra time to the project. South Africa is characterised by having unskilled labour and makes it difficult to find skilled labour (Besner, 2016).

There are natural disasters or biological disasters that can hamper the project fall under the external factors. When natural disasters occur it may affect the project in terms of time to accomplish the project and some cases the project can be damaged which needs more funds to repair the damaged parts of the projects and schedule is also affected since new arrangement need be made to repair the damaged caused by natural disaster (Lappe & Loo, 2019). The stakeholder needs change as time goes on, which can change the scope of the project and increase the overhead costs, also make escalation to delay the project to accommodate the needs changes (Wideman, 2018). The change in government policies that normally safeguard the tasks of the project affect the implementation of the project, imposing more tax to the business results to the plan of the project being change and it became more expensive to accomplish the project. Some rules imposed by government can make the top project team to needs more funds and extending the projects to meet the requirement of government to accomplish the project (Zwikael & Wideman, 2020).

Mullay (2016) argued that sometimes project can be delivered by compromising one constraint to gain the remaining two and Fernandes (2017) further analyse that if one triple constraint experience pressure at least one variable must be flexible with the aim to validate a quality balance. In cases where budget, cost and schedule are negatively affected due to the increase in scope, the scope may not be met, if the change of cost and time is not accommodated (Abrahamson, 2015).

Triple constraints

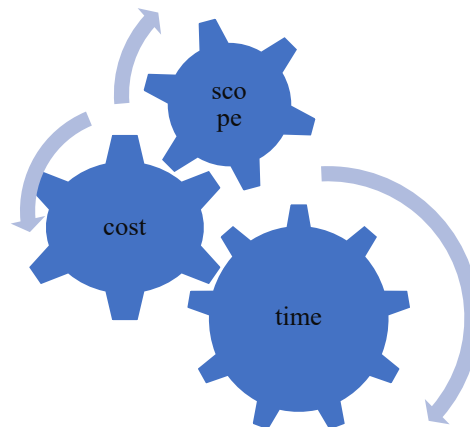


Figure 1: Source Owners own

Figure 1: Show the relationship that exist between triple constraints, change in one constraint result to change on the other two constraints.

Triple constraints are the essential aspect in project every decision that is taken within the project, triple constraints need to be considered. To avoid failure of the project, project team needs to, interpret, understand, and exploit triple constraints effectively because of time, budget and scope can doom the entire project, even if the other part of the project is in high standard of excellence (Hobbs & Ibbs, 2016). (Besner, 2018) ask why this is so? Schipper (2015) explains that project limit is the crucial challenge in project, sometimes it can be impossible if time is not allocated correctly and proper control, monitoring and balance of triple constraints results to the valuable benefits of the projects. These constraints are in hierarchy way “driver,” “middle,” and “weak” constraint, but the driver needs to be met to avoid the failure of the project. There is great flexibility in weaker constraint and that gives project team an opportunity, but the bad thing is missing the deadline which goes over the budget and not deliver as per schedule. The project is not performed for health but for required eggs within budget and expected time. The output must be what is wanted by client or customer, or the project is the waste of funds (Keegan, 2016).

Finishing the project with low cost, within budget that must not jeopardize the scope of the project. The project manager needs to explore all technical aspects of the project in relation to scope, time and cost factors. Project managers need to take triple constraints as the crucial key requirement for success of the projects (Holman & Dehler, 2018). These three elements are optimized to ensure project quality and completion on schedule. Triple constraints have different effects in a project

but when one constraint changes the remaining two also change because there is correlation between them and change of triple constraints have greater effect in deliverables of the project. For instance, in terms of scope, modification can be made to the project without doubting the cost and time of the project like to change (Larsson & Johan, 2017). Therefore, triple constraints have significant impact on project results and deliverables. Similarly, extending or shortening the duration of a project will undoubtedly alter its cost structure. Any modification in the cost structure would force managers to extend or shorten project durations (Huemann, 2018).

It is impossible to stick to initially defined time, scope, and cost, since there are many fallback plans in project by management, which make team of the project to reshuffle project resources which automate affect the project results (Carvalho, et al., 2017). Tharp (2016) mentioned that study that was conducted in 2016 indicate that many project have overrun cost and time which result to the project not meeting the expected final product or service. To ensure that triple constraints are effective, proper orientation is needed to the project staff and the stability of triple constraint lies on how well the orientation was conducted about the project. The employees have different skills working unit, the orientation needs to meet their working field and the task must be given to them during training so employees can adapt early (Eyibio & Daniel, 2020). Ismail and Green (2018) states that working environment can play a crucial role in balancing triple constraints especially for time and costs. When project manager is motivated, it improves the operation of the project, since the vision is clear, resources are being used better, easy schedule and with that triple constraint are monitor, controlled in the interest of management. The triple constraint needs to be balanced since they can determine the success or failure of the project. Stauffer and Lovett (2017) argued that project success cannot be asses based on the imbalances of triple constraints only but project manager need to compare returns and investment at the end of projects but Mantel and Singh (2017) state that investment in the project are part of triple constraint because investment is determine by the costs of projects. Sabini and Alderman (2021) concluded that all feature of a project goes around triple constraints which make them to be controlled and monitored.

RESEARCH METHODOLOGY

The study embraced qualitative method, which is defined as an inquiry that require in depth or explore understanding, human experience, and opinion. The qualitative research approach helps to gather the understanding in full details, thoughtful, perception and detail of the phenomena under study (Aronson, 2019). Braun and Tuckett (2019) state that qualitative collects information in people in terms of their understating, perception fully in their world. Aligning with the above information, interpretivism suite very well as the epistemological framework for the study due to the perceptive and subjective nature subject under consideration which triple constraints change. The perceptive and subjective nature of subject needs description to together with interpretation of what constitutes the triple constraints in the project to change and affect each other looking in any further evaluation (Mack & Johnson, 2016).

The interpretivist paradigm is founded on the idea that methods for interpreting knowledge in social sciences and human which is different from the usage for physical science because human interpret based on their world and act on it, whereas the other world does not (Kellner, 2016). In

adopting this methodological approach, the researcher get deeper or proper understanding of the phenomenon since the results are not generalise and uniqueness is gathered with its complexity of the phenomenon. Researcher in interpretivist is not describing events or human only and objects but are being deeply understandable in social context (Tuli & Dönyei, 2019). According to Johnson (2018, p. 4) “ Interpretivist paradigm allows researcher to investigate and prompt things that we cannot observe, researchers can probe an interviewee’s thoughts, values, prejudices, perceptions, views, feelings, and perspectives”

Purposive sampling which belongs under non-probability sampling were researcher depend on their own view who to participate in the study (Sandelowski, 2017), this sample was suitable to select the sample for this study. Since the purposive sample grant the researcher to gather the data from the respondents, make it fit for this study to give better insights of the research results. The purposive sampling provide platform for researcher to choose people that affected by the research who can provide better and rich information.

Data collection technique for the study adopted semi-structured interview schedule. The twenty participants were contacted to take part in the study, the large number is taken just in case it is difficulties that may occur to reach other, or they decline to participate. Lastly, just ten (10) from the contacted participants have agreed to take part in the study, some have refused based of their personal reason which were not explained and other declined because of ethical reason. The ten (10) participants are from three (3) different project around Mthatha Town, and the interviews were approached personal to gather their rich and deeper understanding on effect of triple constraints on one another. The data was gathered between the month of March 2022 and April 2022 in three projects.

The elements of ethics were considered in terms of confidentiality, respect of participants, participants were not forces to take part that the study (voluntary participation) and allow to withdraw anytime they wish including the data that is already contributed. The researcher analysed data using thematic analysis with the purpose of gathering experience, thoughts, and behaviours, which is the appropriate approach to analyse qualitative data and it can widely utilise any theoretical, epistemological frameworks and it is flexible to be applied in any size sample, study questions and design (Clarke & Braun, 2019). Thematic data analysis is describing data and involve interpretation, codes and themes is selected in the process. It is more appropriate when the study seek to understand thoughts, experiences, and behaviours in the data set (Michelle & Kiger, 2020).

FINDINGS

There is accord among exponents of project management that the pivotal constraints that determine success and failure of a project are the time, scope, and the cost. The figure below depicts the conceptual framework of the study.

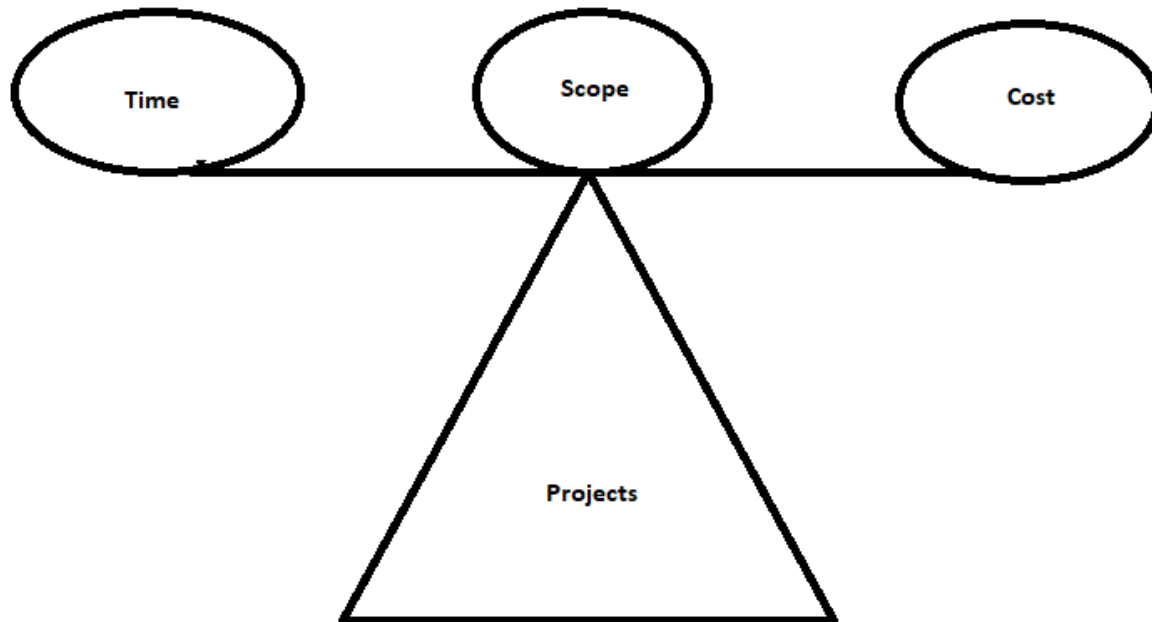


Figure 2: Source Owners own

The figure 2 above illustrates the reciprocal effects of the triple constraints on infrastructure projects. In line with the objective of this study, when there is change in one constraint automatic reciprocal change is inevitable to the other constraint. Therefore, a project manager should learn how to manage these variables to maintain equilibrium. These constraints are at the forefront in determining project success or failure.

The object of this study is:

To establish the reciprocal effects of triple constraints on infrastructure projects

The triple constraints of project management, while somewhat oversimplified, are frequently a helpful method to communicate expectations in a project. Here's how to apply it in practice to design criteria that are the most appropriate considering the priorities selected for managing infrastructure projects. Change in one constraint can influence the other constraints.

The project scope relates to the delimitation and dimensions a project will take. It entails the exact effort that must be done to offer the good, service, or outcome that yields certain outcomes. In addition, scope describes the features that characterize a project's output or results, service that is required, and final product that is produced. Project scope focuses more on the work that will really be done. It delves into the methods and practices that will ensure the project's success. Another element connected to the scope is scope creep management.

In line with the said objective, the findings revealed that when there is unplanned change to the scope of a project, reciprocal changes will happen to the other constraints. In this regard, when

participants were asked concerning how change in scope affect project in infrastructure project, the following responses emerged:

“... This can now be identified as a scope mortification and what we did was to notify the client and the architect on the issue and the architect must do some research on his side to find out why his design does not comply. From there he had to give us a new design of which it took additional him two weeks to complete.

Furthermore, scope changes have the potential to affect other constraints not only in the project mentioned above, in a participant in a related project alluded that:

“In my knowledge of construction, things like this happen in a project and has a huge effect on it. After notifying the client, we wait until the delay has ceased, after which we put in a delay claim which is what I am busy with right now and we quantify the impact of the scope, time and cost, and with that in hand we have to do things in detail whereby we show from the programmes point of view where we are impacted on in terms of time and multiply that with the cost per day of what needs to be done”.

The project scope is the like a framework that provides all stakeholders with a clear understanding of the boundaries and the goals that it intends to achieve. The effect of cost or change in scope can even bring a project to a state of stand-still. A participant highlighted that *“... The projects were also put on hold due to covid. We were told to stop the work by the client, because they knew the urgency of the matter and because of that, it impacted on the cost and time”.*

The outbreak of covid 19 forced project managers to revise the traditional ways of handling projects to accommodate project team who received their wages and salaries based on performance. The imposed lockdown regulation that restricted movement of human goods and services play tremendous role in getting project delayed, dilapidated and some abandoned. One of the interviewed project manager stated that:

“.....we need to look at the project costs holistically and realistically What we did after covid hit was, directors had a meeting with the managers and employees to discuss the cost they must endure based on this. We had to look at elements such as labour, plant, and materials, and from there we decided which elements need to be cut off and which resources needed to be sustained for the sake of the project”.

The costs of completing a project are one of the most important variables to heed by any project manager which include labour rates, work packages, mitigating resources, and monies utilized to regulate the variables that lead to cost variances. indirect costs, cost escalation, cost contingency, and risk control. These expenses are counted using various project cost estimation tools, and they include both fixed and variable costs as well as charges for worker productivity and skill. In all systems constraint must be controlled to avoid imbalances to ensure that success is guarantee (Leybourne, 2020).

Project time management provides an opportunity break the project into manageable piecemeal with every task given a specific time of completion hence assist resource management to enable

managers to track progress. By assigning time to each task a project manager will be able to control project the timeline. In line with the objective of the study, When the time of completion of a project changes, other variables get affected. A participant reacted by saying:

“.... Changes time results into an increase in payment for us as workers even though it would mean working more time than usual”. this inevitably incurred more payments for the project team. Any alteration in scope of a project will trigger upward or downward alteration of completion time or hike in the cost of the project. A participant stressed that:

*“..... From there he had to give us a new design of which it took him two weeks to, so that influenced time and costs but there are procedures that need to be followed prior to that. One of them being we need to start with the notification of delay, which is the first process, which I have done, based on a contractual matter and the **Joint Building Contracts Committee (JBCC)** that we are using. Tracking and aligning projects with the project charter and reflecting on the project baseline are important in ensuring success.*

Changing a few aspects of a project is not inherently difficult. But changing organizational behavior to accept these changes is another matter altogether. The more change you attempt to introduce to your firm, the harder it will be to adapt, accept and embrace that change. Changing a few things in a project is not perpetually incorrect. The more change introduced to a project will make it harder for complete based on the original time and budget allocated to the project. A participant claimed that: *“After notifying the client, we wait until the delay has ceased, after which we put in a delay claim which is what I am busy with right now and we quantify the impact of the scope, time and cost, and with that in hand we have to do things in detail whereby we show from the programmes point of view where we are impacted on in terms of time and multiply that with the cost per day of what needs to be done”*.

When the time changes it results into an increase in payment for us as workers even though it would mean working more time than usual. a participant comprehensively highlighted how the triple constraints affect both their projects and the organisation. The excerpt below expressed:

“..... When you are given a project, you are also given a specific time within which you must complete it in e.g., 30 months and you must pay salaries for those 30 months. However, if you finish in less time e.g., 25 months out of 30 then you save 5 months’ worth of salaries”. This is in line with the Davies (2016) who indicates that all projects function proper with the boundaries three constraints which is scope, time, and cost. While Bergeron (2018) concluded that any change in one constraint always affect the remaining two constraints and these three constraints are attached to each other, achieving them is the task or the project manager. Project managers may be compelled to deviate from the original plan because of numerous constraints and this encouraging provided it will not compromise with the quality and standard of the deliverable (Lukman & Balkaran, 2022)

There are natural disasters or disasters that can hamper the project which fall under the external factors. When natural disasters occur it may affect the project in terms of time to accomplish the project and some cases the project can be damaged which needs more funds to repair the damaged parts of the projects and schedule is also affected since new arrangement need be made to repair

the damaged caused by natural disaster (Lappe & Loo, 2019). To mitigate unplanned constraints a participant asserts that:

“When I plan a project, I usually give myself 2 months less than the stipulated time of completion so that the project will become a reference for the following project. However, you need to be careful about what you are doing because time goes together with quality. A lot of mistakes happen when you expedite a project, therefore need to strategize in such a way that the two do not affect each other negatively”.

Given that each project is unique and presents an exceptional challenges, project managers expertise entails how to manage these con and to provide as lasting solution to the challenges experienced, the participant suggests that: *“You can do this by assigning personnel to various aspects of the project and train them to see the bigger picture of the project.*

CONCLUSION

At this juncture, the project's triple constraints (money, time, and scope) have been revealed in this study to have an impact on infrastructure projects. Successful completion of construction projects depends on how effective time, scope and cost are managed. The triple constraints are pivotal components of any project and they must be taken into serious account before and during implementation phase of the project. Given that the time, budget, and scope can render an entire project a failure, even if other segments are of the highest stand. The project team must comprehend and control triple constraints to avoid misfortunes. The findings of this study stipulate that project managers must study the circumstances that might force them to effect changes to the triple constraints. Encompassing this knowledge at the onset will allow them to adequately have control of the eventualities that may affect the projects in a negative way and this will ultimately enable managers to accomplish the project with minimum alteration to resources and schedule.

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