

An Empirical Investigation into the Origins and Causes of Variation Orders in Construction Projects

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Abstract - Construction projects are intricate and one-of-a-kind procedures. Because of the dynamic nature of the construction sector, it is nearly impossible to foresee anything ahead of time. The initial strategy for the project and the terms of the contract can undergo major shifts, which can result in variations. Cost and time overruns are the result of those differences. The majority of variations are observed to be caused by the human component. This study describes the variations produced by construction project stakeholders. It also emphasizes concerns in industry culture and their impact on the number of variations. Although it is an excellent practice to adequately plan all projects, changes in circumstances need that flexibility to be maintained. Measures should ideally be able to perform under both expected and unexpected conditions, striking a balance between precision and flexibility. The primary goal of this study was to investigate the reasons for variation and to advocate for the need for flexibility in contracts.

Key Words: Construction, Variations, Stakeholders, Costs, Time.

1. INTRODUCTION

A construction contract is a contract that can be renegotiated between the two parties involved in the project. The parties to a contract may freely begin variation orders within the scope of the works if the contract contains contractual clauses pertaining to modifications. However, this does not relieve the parties of any obligation to amend the original contract in any way. Additions, deletions, adjustments, and substitutions are all examples of what can be included in variation orders in relation to the quality, quantity, and schedule of the works. If there were no contractual terms, the construction contractor would have to agree to build exactly the structure that was depicted on the plans and reflected in the invoices for the total amount that was agreed upon for the contract, without making any modifications.

Because it is difficult for clients to envisage the ultimate product they purchase, some variation should be expected (Love 2002:19).

The drawback of the variation clause, on the other hand, is that architects are less likely to put their intentions in writing before signing the contract since they know the variation clause will allow them to finalize their plans during the contract's term (Wainwright & Wood 1983:11).

Another disadvantage of the variation clause is that it encourages clients to alter their minds and start construction projects before adequately considering their project requirements. (Finsen 1999:109).

Contractors, on the other hand, are primarily concerned with construction costs and their decrease. The reality that clients or their agents may be causes of greater building expenses is rarely acknowledged. Clients and consultants frequently overlook the fact that issuing a large number of variation orders leads to increased construction costs. (Ndiokubwayo, Ruben & Haupt, Theo. (2008)).

Provisions for changes in contracts allow contracting parties to initiate variation orders within the scope of the work without altering the original contract. (Ndiokubwayo and Haupt 2008). Once a contract has been signed, its terms cannot be amended unless the contract expressly allows for it, and then only those changes that are plainly within the contract's terms are permissible (Willis & Willis, 1980). Variations and disagreements are fairly typical in building projects, at work, and even in our daily lives (Arain and Low 2006). Variations are a typical occurrence in the construction business, and they can cause time and cost overruns as well as quality variations in both basic and complex projects. Furthermore, change's indirect consequences are important. Loss of productivity and disruption of workflows and financial flows, as Bower (2000) suggests, are examples of indirect consequences that can lead to lower morale, claims, and disputes between parties. (Chantawarangul, K., Suanpaga, W., Yazdani, S., Vimonsatit, V., and Singh, A. (Eds.))

Ssegawa et al.(2002) goes on to say that the existence of contract variation clauses proves that no project can be finished without adjustments. As a result, variation is a persistent issue in the building business. Although it is ideal if all projects are completely planned, changes in circumstances (such as the client's operational environment) need maintaining flexibility. Failure to respond to environmental influences may have an impact on the project's output's appropriateness. (Hughes 1989). Project measures including plans, processes, organizations, contracts, and information systems should ideally be able to perform in both expected and unexpected circumstances. (Gilbreath 1986).

These measures should strike a balance between the need to be exact and firm while still allowing for some wiggle room. Projects in the construction industry are typically procured using conventional contract forms. Although contract law may be traced back to the roots of standard forms in modern commercial operations, there are differences between the traditional paradigm of a single exchange transaction and certain types of contracts, such as those in the building and engineering industries. Some construction and engineering projects take a long time to complete; they are not one-time contracts. This causes issues since the impact of external pressures on the construction process cannot be adequately predicted or calculated. As a result, the output's appropriateness is compromised. In the end, a reasonable deal may out to be burdensome due to changing circumstances. (Bell 1989: 195-220).

As a consequence of this, modifications are necessary in order to take into account the shifting conditions that have an impact on the process of building. The contractor, on the other hand, is not obligated to comply with any alteration request. Any deviation from the scope of work that a contractor has committed to performing requires a new and separate agreement. (Powell-Smith and Sims 1983, Murdoch and Hughes 1992). Many scholars have emphasized that it is more advisable to include future-oriented terms because it is difficult to finish all components of a contract prior to its start.

2. Hypotheses

The hypotheses that will be evaluated in this investigation are as follows:

- H1. Construction contracts are generally one-sided in nature.
- H2. Non-flexibility nature of variation clause in the contract document.

2.1 H1. Construction contracts are generally one-sided in nature.

In large construction projects, the owner is the primary source of variation. The most common reason for variations is the owner's change of plans. This could be explained in one of three ways. To begin with, the owner was not involved in the design process. Given the positive or active participation of the owner indicated in the first conclusion, this is unlikely. The owner, on the other hand, did not comprehend or see the design. The owner may not be able to read drawings since the designer did not make the design obvious. Third, it's just a mental shift that ignores the negative consequences of changes. The findings revealed that the owner can make changes as a result of financial difficulties.

Construction contracts are usually written by the owner or his agent (consultant) and include the subject content as well

as the terms and conditions. Typically, the construction contract is jeopardized of (Alaa and Gorold 1993) :

Agreement Form for Bids

Standard specs or general circumstances

Distinctive provisions

Plans\addenda

Construction contracts must also include a compensation mechanism, which is commonly classified as illustrated in the figure.

Early detection of potential claims and disputes is one method of completing a project that is free of issues. Simply designing and executing a contract that attempts to shift the risk of delays and expenses to the contractor will not prevent disputes (Navigant Construction Forum, 2015). Contractors and their legal counsel will almost certainly find a method to circumvent such contract provisions. "What one guy can invent, another man can circumvent," as the adage goes.

Before either the owners or the contractors can deal with a conflict, they must both realize that one is on the way. The parties to a contract are frequently in a conflict before they realize it, according to experience.

"There is nothing permanent except change," declared Heraclitus, an ancient Greek philosopher. This adage is still true today, especially when a major project is being built. Change orders are frequently derided by project owners, and some even begin new projects by telling their contractor, "There will be no change orders on this job!" Owners that have this mindset are missing the point. The owner, not the contractor, benefits from the contract's Changes provision. The Adjustments clause gives the owner the flexibility to change their minds, make changes to the work in progress, modify the project to meet the owner's changing demands, and so on. It's impossible to avoid change. As a result, before starting a new project, the owner should assess their change management system both internally and in the contract agreements.

The Owner Announces "There Will Be No Change Orders on This Project" at the Pre-Construction Meeting – For the contractor, this is a clear early warning sign of potential claims and disputes, as it indicates that the owner has unrealistic design and construction expectations and/or has not read their own contract. Constructive alterations, delays, and constructive suspensions of work disputed differing site condition claims, and constructive acceleration is all claims and conflicts that are likely to arise as a result of this mindset.

A disadvantage of the variation clause is that it encourages clients to alter their minds and start construction projects before adequately considering their project requirements (Finsen 1999:109).

Contractors, on the other hand, are primarily concerned with construction costs and their decrease. The reality that clients or their agents may be causes of greater building expenses is rarely acknowledged. Clients and consultants frequently overlook the fact that filing several change orders increases construction expenses. For example, a client with a deadline may desire construction to begin on-site when the design is still in the early stages. Construction work may overlap the design in some situations, forcing the contractor to wait for the exact design. As a result, some projects are placed on hold, while others are aborted or demolished.

(Adnan Enshassi, Faisal Arain & Sadi Al-Raei, 2011) commented that the link between ranking by owner and contractor is substantial, whereas the correlations between ranking by consultant and owner and consultant and contractor are weak.

Therefore, the hypothesis that construction contracts are generally one-sided in nature cannot be rejected.

2.2 Non-flexible nature of the variation clause in the contract document.

Although it is ideal if all projects are well-planned, changes in circumstances need maintaining flexibility. As a result, specific phrases in contracts are introduced that allow for revisions to the specification. However, allegations that variations are the cause of delays, conflicts, and conflict in the construction process have completely overshadowed the benefit of contractual flexibility. Some of the debates are over the amount of compensation that should be paid, whether in terms of time or money. Contracts should be written to reflect the needs of the parties in changing conditions if these issues are to be avoided. Given restricted rationality and opportunism, it is preferable to provide the parties the option to negotiate over contract provisions that are incompatible with their (changing) needs. In actuality, the response of clients to the surroundings should dictate the design of building projects. Failure to respond to environmental influences may have an impact on the project's output's appropriateness. (Hughes 1989). Project measures including plans, processes, organizations, contracts, and information systems should ideally be able to perform in both expected and unexpected circumstances. (Gilbreath 1986). These measures should strike a balance between the need to be exact and firm while still allowing for some wiggle room. Projects in the construction industry are typically procured using conventional contract forms. Although contract law can be traced back to the origins of standard forms in modern business operations, there are variations between building and engineering contracts and the traditional paradigm of a single exchange transaction. Some construction and engineering projects take a long time to complete; they are not one-time contracts. This causes issues since the impact of external pressures on the construction process cannot be adequately predicted or

calculated. As a result, adjustments are required to reflect the changing circumstances that affect the construction process. Variations have been cited as a source of disagreements and/or conflicts (Gardiner and Simmons 1992 & 1995, Wood 1975), partly as a result of delays (Bromilow 1970, NEDO 1983) and interruption (Banwell 1964, Ireland 1985), which result in cost overruns. Variations have also been blamed for the decline in output (Latham 1994, Moselhi et al. 1990). The stigmatization of variations has therefore led to their rigid nature in the contract document.

3. CONCLUSION

The paper demonstrated that there is a substantial amount of evidence in the literature to support the veracity of the following claim: Variation is almost unavoidable in any construction claim. Given the competitive nature of the construction industry, many contractors suffer as a result of the one-sided character of contracts and the non-flexible nature of contract variation clauses. Because a trade-off between price and performance is the norm, rigid variation clauses invariably harm quality. As a result of the construction industry's culture of variation claims, the 'agility' of the construction process is nearly hard to achieve. However, it should be noted that the sector is aware of its internal issues, and much work is being done to mitigate the hazards associated with construction variations.

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BIOGRAPHY



Ansuman Pati graduated from the Manipal School of Architecture and Planning. As an Architect with 2 years of experience in the Built Environment Industry, he is currently pursuing MBA in Construction Project Management from the Royal Institute of Chartered Surveyors, School of Built Environment.