

The Impact of Contract Changes on Construction Project Implementation Based On Contractor Perceptions in Indonesia

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ABSTRACT: A construction contract is an agreement between service providers and service consumers for the execution of construction work, and those who violate it face penalties. Based on the opinions of contractors, this study attempts to ascertain how contract differences affect the execution of building projects. Both qualitative (field data gathering) and quantitative (basic linear regression analysis) methods are employed. The findings demonstrated that the significant value is $0.008 < 0.05$, which is based on the regression test results derived from the questionnaire data. Therefore, this suggests a positive relationship between variables X (factors influencing changes in construction contracts) and Y (impacts on construction projects).

KEYWORDS: Contract Changes, Contractor Perceptions

INTRODUCTION

In carrying out a construction project, the possibility of changes in planning and implementation cannot be denied. Changes that occur in construction projects can be caused by changes in planning drawings, quality of implementation, weather at the location of construction work that affects the time schedule, implementation methods that change due to field conditions, quality of construction implementation, and so on.

In Susila (2019) it is explained that based on the opinion of Suharto (2001), changes to construction contracts can occur due to several things:

1. Changes in specifications or design-engineering criteria due to the owner wanting to keep up with technological advances.
2. Consideration of operating comfort, because at the time of design it received less attention from project engineering.
3. Changes due to the discovery of new conditions that are different from the results of previous studies. These changes are often found during earthworks to prepare the site.
4. Contract articles are unclear, leading to different interpretations between the contractor and the owner.
5. The owner's desire to accelerate the schedule. Due to new conditions regarding market conditions, the owner wants to accelerate the project completion schedule even if it has to increase costs.

This contract change can occur at any time, be it at the beginning, middle, or at the end of construction work. The occurrence of contract changes in a construction project can have a negative impact both directly and indirectly, both for

the contractor and the owner. The direct impact of contract changes is an increase in labor costs due to additional quantities and materials, implementation schedule conflicts, rework, increased overhead costs, and increased work costs. This is in accordance with Martanti's (2018) statement that contract changes can have an impact on cost, quality, and time. (Corry Lela et al., 2022) In addition, according to Suroso (2021) the indirect impact of contract changes is the creation of disputes between owners and contractors. Meanwhile, according to O'brien and Zilly in Nurmala and Hardjomuljadi (2015), contract changes have an impact on job time performance. And Schaufelberger's opinion in Maulana (2016) states that contract changes affect the increase in labor and the addition of project equipment.

CONSTRUCTION CONTRACTS AND AMENDMENTS

Construction contracts are all contract documents that govern the legal connection between service providers and service users in the execution of construction services, according to the Construction Services Law No. 2 of 2017. Djatnika (2018) states that depending on their legal foundations, construction contracts might be either national or international. The term "national contract" refers to a contract that is made between two parties on Indonesian soil and excludes any foreign elements from its topic or object. A contract that has a foreign element and has work being done in both Indonesia and other countries is considered international. The legal system of a party's nation that participates in the contract activity, as determined by the legal option or decision reached by the two parties, is the foreign component or element in question.

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The construction work contract provides a legal foundation for the execution and decision-making of a construction project. There are various types of construction contracts in Indonesia, including private, foreign private, and government versions. Lestari (2013). Both internal and external causes might lead to revisions in construction contracts. Project owners, planning consultants, and contractors are examples of internal factors, which are those that originate within or within the scope of work and lead to modifications. However, external variables, also known as forces from outside, are those that cause changes and have sources outside of the scope of work, such as natural disasters, the issuing of government laws, increases in the cost of labor and materials, or other unforeseen circumstances. Suadnyana (2021).

Changes that take place during the execution of work in the field are brought about by a number of causes and are modifications to the design to fit the circumstances and field settings. When construction work is being carried out, changes may take the form of adding new work items, altering existing work items, or modifying the volume of work items. Technical Justification is a construction management document that details these modifications.

A technical justification is a description that includes an analysis of the findings of technical testing that can resolve issues with the work's execution. (Mulyadi & Nasrul, 2019). Nasrul and Mulyadi added, When anything is added to the original construction contract but yet remains an essential component of it, it is referred to as an addendum. (Mulyadi & Nasrul, 2019). As long as the parties—in this case, the contractor and project owner—agree, an addendum may be made. A construction management expert will review it.

RESEARCH METHOD

In this study, using a questionnaire method given to 30 contractor directors spread across Jakarta. The questionnaire variables are made based on the factors that cause changes in construction contracts and their impact based on contractor perceptions. The variables consist of variable X (Factors that influence changes in construction contracts) and Variable Y (Impacts that occur on construction projects). The following

components make up variable X: 1. factors related to construction implementation; 2. administrative factors; 3. parties engaged; and 4. environmental and natural factors. In contrast, variable Y comprises: 1. Construction project delays; 2. Contractor and owner losses; 3. Building design modifications; and 4. Schedule and work planning inconsistencies.

Statistical analysis is being conducted in the interim utilizing SPSS and basic regression and correlation algorithms. Examining whether, according to contractor perceptions, there is a connection between contract modifications and construction project execution.

RESULT AND DISCUSSION

1. Kormogolov Smirnov Normality Test

It is carried out to determine whether or not the study's data is regularly distributed. Prior to performing regression testing, this test is a component of the data analysis test that verifies the distribution's normality. This can be seen in the following Table 1.

Table 1. Kormogolov Smirnov Normality Test

N		30
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	1.23665163
Most Extreme Differences	Absolute	.096
	Positive	.088
	Negative	-.096
Test Statistic		.096
Asymp. Sig. (2-tailed)		.200 ^{c,d}

The significance value of 0.200 is known to be greater than 0.05 based on the results of the normality test in Table 1. Therefore, it can be argued that the residual value is normally distributed, allowing regression and correlation tests to proceed.

2. Linear Regression Test

Table 2 below is the linear regression result.

Table 2. Linier Regression Test

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.451	1.767		4.216	.000
	Dampak Perubahan Kontrak	.102	.035	.478	2.881	.008

a. Dependent Variable: Pelaksanaan Proyek Konstruksi

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Table 2'd findings from the basic linear regression test indicate that the regression model is $Y = 7.451 + 0.102X$, with a significance value of $0.008 < 0.05$. This indicates that variable X (Factors that influence changes in construction contracts) and Variable Y (Impacts that occur on construction projects) have a positive connection.

Table 3. Linenar Correlation Test

		Dampak Perubahan Kontrak	Pelaksanaan Proyek Konstruksi
Dampak Perubahan Kontrak	Pearson Correlation	1	.478**
	Sig. (2-tailed)		.008
	N	30	30
Pelaksanaan Proyek Konstruksi	Pearson Correlation	.478**	1
	Sig. (2-tailed)	.008	
	N	30	30

Based on Table 3, the Pearson correlation is 0.478, which means that it has a very close relationship according to the standard degree of correlation and is positive.

As for the causes of contract changes according to research by Cory, et al (2022) show that the dominant factor causing and influencing changes in the work contract (Change Contract Order / CCO) implementation of construction projects in South Minahasa Regency is the factor of added work and less work, but these factors do not affect the performance or performance of the contractor.

In contrast, Susila's 2019 study discovered that contract modifications in Sragen City's Diponegoro Road Widening and Overlay Project happened as a result of shifting work volumes and expanding the project's scope. Project performance, quality, and completion time are unaffected by modifications to the Diponegoro Road Widening and Overlay Project contract. The value of the contract is significantly impacted by modifications made to the Diponegoro Road Widening and Overlay Project.

According to the data gathered, Geraldo et al. (2017) found that "Design Changes" had the greatest impact on time, cost, and quality indicators for small, medium, and large-scale projects, while "Changes in Work Methods" had the greatest impact on safety indicators for the same projects. "Change Order Causes the Total Progress of the Project to be Slower" (time), "Change Order Causes the Total Cost to Increase" (cost), and "Worker order is not considered" (safety) are the effects of change orders on small, medium, and large-scale projects. "The method of workmanship used becomes ineffective" is a quality indicator for small-scale projects, whereas "the volume of work increases" is an indicator for medium- and large-scale projects.

The research conducted found that for the Kubu Raya Regent's Office construction project, the biggest cause of change was due to the disclosure of new conditions that were

3. Linear Correlation Test

To ascertain how closely Variable X and Variable Y are related, correlation analysis is required. Table 3 below illustrates this.

different from the results of previous studies, and had no impact on cost and time, for the Tanjungpura University Faculty of Forestry Phase III Advanced Lecture Building and Laboratory construction project, the biggest cause of change was because it was requested by the prospective operating organization at the end of the project during pre-commissioning. Items concerning comfort and safety issues. Each project has its own causes of work changes, which cannot be equated with other projects, because each project has its own structural characteristics and the area or place where the construction is built is different (Ningsih, et al, 2013).

However, changes in construction contracts can also have a positive impact as research conducted by Perwitasari, et al (2018) which states that the magnitude of the impact of CCO on costs is 95% and causes changes in supplier and vendor procurement, additional overtime costs, profit or contractor profits to decrease, and cost overruns. With a correlation value of 0.835. The impact of CCO on quality is 89% and results in non-compliance with work objectives, reliability (consistency) of construction buildings, but the work results are better because field engineering and engineering justification are carried out in more detail.

REFERENCES

1. Geraldo, Matthew; Ariesto, Franklyn; Limanto, Sentosa. (2017). Faktor Penyebab dan Dampak Change Order Terhadap Indikator Performa Proyek (Causal Factors and Impact of Change Order on Project Performance Indicators). Petra Christian University. Siwalankerto, Kec. Wonocolo, Surabaya, East Java 60236.
2. Kuswandari, AD; Koesmargono, A; Ervianto, Wulfram I. (2018). Pengaruh Dampak Contract Change Order Terhadap Kinerja Kontraktor Proyek

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- Studi Kasus: Rehabilitasi Jembatan Ngablak (The Effect of Contract Change Order Impact on Contractor Performance Case Study Project: Ngablak Bridge Rehabilitation). *Jurnal Teknik Sipil*. Vol 14 No. 4, April. P 255 – 262.
3. Lakaoni, Kevin; Waty, Mega. (2023). Dampak Change Order Proyek Konstruksi Bangunan Gedung Bertingkat Sedang (Impact of Change Order on Medium-Rise Building Construction Project). *JMTS: Jurnal Mitra Teknik Sipil* Vol. 6, No. 2, P 367-382.
 4. Ningsih; Syahrudin; Wardhani, Nurul. (2013). Identifikasi dan Analisis Penyebab dan Akibat Contract Change Order Terhadap Biaya dan Waktu Pada Proyek Konstruksi (Identification and Analysis of Causes and Effects of Contract Change Order on Cost and Time in Construction Projects.). Engineering Faculty, Tanjungpura University. Pontianak, West Kalimantan.
 5. Perwitasari, Dian; Rahadiano, Dicky; Parapat, Nani. (2018). Identifikasi Dampak Change Order Terhadap Biaya dan Kualitas Pada Proyek Gedung Laboratorium Teknik 2 Institut Teknologi Sumatera (Identification of the Impact of Change Order on Cost and Quality in the Engineering Laboratory Building 2 Project of Sumatera Institute of Technology). Civil Engineering Departement, Infrastructure and Regional Technology, Sumatra Institute of Technology, Jalan Terusan Ryacudu, Desa Way Hui, Kecamatan Jati Agung, Lampung Selatan 35365.
 6. Susila, Herman (2019). Pengaruh Perubahan Kontrak Terhadap Pelaksanaan Proyek Konstruksi Ditinjau dari Persepsi Kontraktor (The Effect of Contract Changes on the Implementation of Construction Projects Viewed from the Contractor's Perception). *Jurnal Teknik Sipil dan Arsitektur*. Vol 24 No 2.
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