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SCOPE MANAGEMENT ANALYSIS OF CONSTRUCTION WORK FOR MIX-USED BUILDING PROJECTS IN THE CITY OF JAKARTA

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ABSTRACT

Planning the process of activities and work items in detail on the project is very important in construction work because it can affect the process of implementing project activities which starts from the bidding stage of a project. In this case, the construction service provider involved in a project is required to understand how the contents and conditions have been included in a construction project work contract so that they can identify the total number of construction work activities according to the scope of work. In this stud,y the method of analysis was used by taking references from several previous studies related to the management of the scope of construction work. Apart from the literature, data collection and interviews were also carried out with service providers, namely the main contractor for the ABC building construction project in the city of Jakarta. By using knowledge and experience for the implementation of project management, in terms of how the contractor can carry out the process of preparing the scope of construction work in detail. Therefore, information on the results of processed data from respondents who were directly involved in the implementation process of the ABC Building project was also obtained regarding the factors and variables that influence the drafting process to control the scope of construction work to help improve project completion performance. In this case, it produces data that it is known that there are 6 variables that have a strong influence on the preparation of the scope of construction work for the ABC Building project.

Keywords: *Scope management, project planning and implementation, scope of work control, project completion performance, ABC Building project.*

INTRODUCTION

Construction project work often faces problems in managing certain stages of the work process. Management of the scope of construction work in a construction project contract is very important, considering that it can affect the process of future project implementation and the results of the construction work. So from this, every process of carrying out construction work must be determined in detail, and also the distribution of persons in charge of each work item, because if there are additional items during the construction process it can result in delays in completing a job (Susila & Handoyo, 2019). Apart from these impacts, it is possible that there will be a domino effect occurs, namely a delay that occurs in a work item can cause other work items to also be delayed so that it requires a lot of additional time besides that it can also increase work costs when carrying out work. In this case, the contractor, namely the service provider, will be greatly disadvantaged by the additional costs that can occur during the implementation of construction work, besides that other parties, namely the project owner (owner) can also receive the impact of losses due to delays in completing construction project work (Lambropoulos, 2013).

Determining the scope of work in detail in the process of preparing tender documents can help the actual process of carrying out construction work so that each stage of construction implementation remains appropriate and is still within the scope of the work contract that has been made (Azevedo et al., 2014; Sutrisna et al., 1970). Therefore, every detailed work item

must be recorded in detail and can be understood by all parties involved in the project so as not to cause additional work items and deviate from the initial contract which can burden the project cost (Miri & Khaksefidi, 2015).

The project, which has a total of 26 floors, applies a design and build contract system. The characteristics of this type of design and build contract offer a practical system in which the planning stages of a project are still running concurrently with the construction implementation process in the field (Iqbal et al., 2015). This study refers to the basic knowledge in the scope management discussion science chapter contained in the PMBOK (Project Management Body of Knowledge) and refers to the FIDIC (International Federation of Consulting Engineers) construction contract book literature as reference material and considerations in preparing this research study(Kongsong, 2017; Schoonwinkel et al., 2016).

In the preparation of this research, an analysis of the control of the scope of the construction work contract was carried out on the actual results of the construction work in the field by taking a case study on the construction project of one of the government-owned high-rise buildings in the city of Jakarta (Kazemi et al., 2018). In the analysis of the study in this study, it was carried out at each stage that was directly involved in the project life cycle process, the components in which were related to construction actors which were reviewed from the perspective of the owner and contractor. It can be estimated that changes to the scope of work may occur from the side of the owner, consultant or contractor, thereby affecting the initial project contract (Liu et al., 2020).

This study aims to get answers to research questions and is expected to be a means for improvement in the future. So the purpose of this research is as follows, knowing how construction work management can be arranged and implemented in the implementation of the project being studied. Knowing what factors and variables are involved in making management of the scope of construction work on this project.

METHOD

This research was conducted using quantitative and qualitative analysis methods with a retrieval system from several existing literature sources and there is a specific link to the research studies made, to determine significant variables in determining factors relevant to the management of the scope of construction work of building construction projects ABC of the actual implementation of work in the field so that it has an impact on the completion time of construction projects (Nduhura et al., 2021).

Research Process

The research process was carried out in several stages. This stage starts from the first activity in determining the topic of discussion to the final stage of the conclusion. The research process involves the instruments used in answering each research problem as follows:

1. Secondary Data, namely data that has been processed beforehand. Secondary data sources are journals, books, government publications, and other supporting sources. Secondary data is the source comes from previous researchers.
2. In obtaining data on these factors and variables, journal data and previous literature relevant to the topic were first used, then statistical tests were analyzed using the SPSS application as the calculation.

Research Instruments

The research instrument is a tool used to measure the variables studied with the aim of producing accurate quantitative data, so each instrument must have a scale. Sources of data in this study used 2 types of data, namely primary data and secondary data.

Primary data

Primary data can be explained that primary sources are data sources that directly provide data to data collectors. Primary data collection in this study was done by collecting data-related information in the process of project implementation and conducting direct interviews with parties related to research, in this case, workers who are contractors and consultants on this project. The research respondents came from parties involved in the project with at least 2 years of experience. The questions asked in the interview process were also prepared based on literature studies, and existing journals that have almost the same rules as this research topic.

Secondary Data

Secondary data is data obtained through collection from existing sources such as books, reports, electronic media, and previous research results. In this study, secondary data related to the management of control over the scope of construction work as well as schedule control management in the implementation of the ABC building construction project in the city of Jakarta.

Research Methods

The research begins with problems regarding the process of planning and controlling the scope of construction work in multi-story building construction projects carried out in the field which is the basis of the research, then continued with the research hypothesis which explains that there are factors and variables that influence the preparation of work details in the planning documents for the scope of construction work (Rose & Indelicato, 2009).

RESULTS AND DISCUSSION

Management of the scope of construction work in the project

In answering problem 1 in this study, it was used by taking secondary data, which is sourced directly from the original data and documents from the project under study. The case study in this research was carried out in the ABC building construction project located in the City of Jakarta area with the status of project ownership by a government-owned business entity with a design and build contract system. Projects with a value of more than 500 billion are carried out by one of the BUMN contractors and start from April 2021 with a work contract period of 2 years of construction and 1 year of maintenance. Until now, the performance of the implementation of project construction activities has reached a percentage of 75 percent as of December 2022 with a target for completion in April 2023.

In the construction of The ABC building project in this study, it was built with a scope of work contract starting from design planning, lower and upper structural work, architectural and landscape work, as well as mechanical electrical, and plumbing work (Kongsong & Pooworakulchai, 2018). In more detail, it is shown in Table 1 the scope of the work contracts in the construction of this project has been approved by various project stakeholders, namely the project owner, MK consultant, and implementing contractor(Muhammad et al., 2019).

Table 1 Data on the Scope of Work for the Construction of the ABC Building

No	List of Scope of Work	Description
1	Planning & Licensing	• Schematic Design (SD) • Development Design (DD) • Detailed Engineering Design (DED • Project Keet Licensing • Andalalin Licensing • IMB Licensing • Supervision Licensing
2	Structures	• Bored pile and D-Wall foundation structures • Excavation, Dewatering, Pile Cap • Raft Foundation work • Column, Beam, Shear Wall, Ladder Structural Work • Steel Structure and Canopy Work
3	Architecture & Interior	• Full finishing Lt. Basement - Lt. 2 • Full finishing Lt-23 - Lt.24 • Bare finishing Lt 3 - Lt.22
4	Mekanikal & Elektrikal	• Full finishing Lt. Basement - Lt. 2 • Full finishing Lt-23 - Lt.24 • Bare finishing Lt 3 - Lt.22
5	Infrastructure & Landscape	• Pavement works, canals, control tanks, and long soak ponds • Softscape (plants) and hardscape (park benches, ponds, fences, canopies, finish sidewalks & roads) work on the ground floor, 2nd floor, and 23rd floor

In the process of carrying out construction activities in the ABC building project, the implementing contractor as a construction service provider applies procedures in planning and controlling the scope of construction work through the process of analyzing activities related to all aspects of construction work items (Halou et al., 2019). In addition, identification and analysis of resource requirements to support project construction implementation so that the project delivery process can run smoothly in accordance with the work contract. This has been described by the construction team into a Project Management Plan document in which all activity information and descriptions and process plans for the implementation of the construction project have been summarized from start to finish.

Factors and Variables of Construction Work Scope Management

Based on the results of interviews with project stakeholders and direct observations, several factors and variables were found to be used in controlling the scope of construction work in high-rise building development projects in the City of Jakarta. In this study, a survey was carried out on the parties responsible for the implementation of high-rise building projects in the city of Jakarta. In this case, the intended participants are the workers in the contractor on this project. The research respondents came from parties involved in the project with at least 2 years of experience. The questions asked in the interview process were also prepared based on literature studies, and existing journals that have almost the same rules as this research topic.

Can be seen in the table below is a summary of the number of participants or respondents who participated in surveys and interviews directly at the project site.

Table 2 Respondent Information Data

Job Position	**QTY**	**Job Position**	**QTY**
Project Manager	1	Architect Engineer	4
Site Manager	2	MEP Engineer	4
Operational Manager	2	QS Staff	6
QC/QA Staff	3	Procurement	4
Civil Engineer	11	Administration	2

The following are the results of the analysis of factors and variables that are formed to influence the planning of control over the scope of construction work for high-rise building development projects in the City of Jakarta, as follows.

Table 3 Factors and Variables of Construction Project Work Scope Management

Factor	**Code**	**Variable**
Scope Management Project	X1	Noted every details information items work construction
	X2	Designing making project management plan
	X3	Processing planning making WBS in a manner detail
	X4	Processing And designing control scope baseline in project
	X5	Plan And record personnel team from each department For every job
	X6	Plan process control risk change Which happen
	X7	Arrange process implementation reception until give up accept project
	X8	Analyze, document, as well as manage all items work
Project Requirements	X9	Gather details information to stakeholders interest project
	X10	Analyze need resources project Which will managed
	X11	Plan details specification tool And material all items work construction
	X12	Identify planning design Which detail every items work
	X13	Identify details information And planning budget-cost all work items
	X14	Determine regulation project in reception And deliverables work
	X15	Planning development design And product in process construction
	X16	Planning And development details items work in WBS

Factor	Code	Variable
Defining Scope of Work	X17	Reviews process identification And document activity special project
	X18	Reviews description activity in each items work construction
	X19	Reviews to description scope items work construction
	X20	Reviews need in preparation until implementation project
	X21	Reviews planning deliverables system in activity construction project
	X22	Reviews policy And procedure Which has set in process construction
	X23	Reviews process identification volume And budget each work construction
	X24	Reviews criteria And condition in implementation construction project
	X25	Reviews estimation problem Which can happen in construction project
	X26	Reviews renewal document Which needed in implementation
Making WBS	X27	Distribution sub scope details items work in accordance description work
	X28	Distribution sub scope items work from system implementation
	X29	Management items work in accordance limitation scope project
	X30	Distribution sub scope items work in accordance regulation And procedure
	X31	Distribution sub scope items work in accordance need project
	X32	Distribution sub scope items work in accordance system control and maintenance
	X33	Distribution sub scope items work in accordance duration sequences work
	X34	Distribution sub scope items work in accordance specification implementation
Validation Scope of Work	X35	Reception data baseline scope items work construction
	X36	Reception And agreement data scope management plan
	X37	Reception updates data specification And criteria on each items work
	X38	Reception documents Which has updated in accordance plan actual
	X39	Agreement scope work from party stakeholders interest project
	X40	Agreement change data/specifications from party stakeholders interest project
	X41	Agreement related plan And sequences each items work construction
	X42	Agreement results end project management execution plan
Scope of Work Control	X43	Inspection tracking project management plan in accordance actual implementation project
	X44	Inspection tracking matrix For detection change scope from baseline
	X45	Inspection reporting data And document in accordance actual work in field
	X46	Inspection return procedure And regulation in accordance actualization execution of work
	X47	Inspection to organization project on suitability implementation work
	X48	Inspection And analyze variation Which happen in implementation work
	X49	Inspection And document amount variation work in field
	X50	Inspection comparison amount variation work to scope baseline

CONCLUSION

From the results of research through a survey of respondent data to parties involved in the construction of the ABC Building project in the city of Jakarta. It can be seen how the process of planning and controlling the management of the scope of construction work in the project under study is as follows: The project implementing party has carried out an identification process related to the type and activity of work items and the service provider has carried out the process of dividing the scope of work according to the sequence and implementation procedures in accordance with the construction work contract agreement. The process of identifying all work items in accordance with the implementation contract has been compiled in the "Project Management Plan" book which contains system information and procedures for all construction work items in the project under study. The process of controlling the scope of construction work is based on tracking the actual construction activities and matching them with the baseline documents listed in the "Project Management Plan".

Furthermore, to find out the factors and variables for compiling the scope of construction work, therefore there is data that was successfully obtained from the process of distributing questionnaires to as many as 40 respondents and strengthened by reference analysis relevant to this research to produce data that can be seen that there are 6 factors and 50 variables which may affect the management of the scope of construction work for the ABC Building project. The following are strong variables influencing the management of construction work scope management.

Table 4 Selected Variables Management of Construction Project Scope of Work

X3	Processing the WBS creation planning in detail
X24	Review of criteria and requirements in project construction implementation
X16	Planning and development of detailed work items in the WBS
X27	Division of detailed sub-scopes of work items according to job descriptions
X42	Approval of the final results of the project management execution plan
X45	Examination of data and document reporting according to actual work in the field

Of the six variables formed in the results of data analysis modeling, having a contribution as a constituent of the scope of construction work is expected to help the process of implementing construction work on the ABC Building construction project in Jakarta City so that it can be completed in a timely manner without any changes in work that result in the performance of project completion being hampered.

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