

# Application of time management systems in tardiness of the auditorium construction projects in the district Bone Bolango, Gorontalo Province

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**Application of time management systems in tardiness of the auditorium construction projects in the district Bone Bolango, Gorontalo Province**

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**Abstract.** Time management is an attempt to complete a project. This is supposed to improve priorities, and effort to increase the efficiency and effectiveness of project management in order to achieve maximum results from available resources. All of that is to achieve the goals of a construction project, specifically success that satisfy the criteria of time (schedule), cost (budget) and quality. The aspects of time management consist of scheduling, monitoring, comparing progress in the field with scheduling, determining the effects caused at the end of completion, planning treatment to control the effects, updating project scheduling. Analysis of the calculations proves that in the late jobs, the crash program can be done by increasing the number of workers to minimize the duration that is too late. The monitoring can reduce the deviation between progress against the schedule. The monitoring includes measurement and work results (progress) of each activity, then the measurement results are recorded (Report) into a report form. The monitoring includes measuring and recording the results of work, recording resource usage, checking the quality of resources, recording performance and productivity, checking the possibility of emergence of new critical paths, corrective action and update schedules. From this study the results obtained by the completion of work using time management work in construction of auditorium building of the Bone Bolango regents office can be accelerated by 40 %.

## 1. Introduction

Carry out a good project and according to the plan required proper management, time management priorities. Proboyo, in general project delays often occur because there are changes in planning during the implementation process, poor managerial in the contracting organization, work plans that are not well structured, not integrated, drawings and specifications are incomplete, both contractors in the work [1]. Andi et al., in general the factors that have the potential to influence the timing of construction consist of seven categories, namely labor, materials (materials), equipment (equipment), place characteristics (site characteristics), managerial (managerial), finance (financial), other factors include rainfall intensity, economic conditions and workplace accidents [2]. This will directly reduce project cost overruns, and in the end will provide special benefits to the contractors as the party responsible for implementing the project. Project management has characteristics, is unique, requires a lot of resources, and requires organization. The completion process must adhere to three challenges (triple constraints):



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according to the specified specifications, according to the time schedule and according to the specified costs [3]. Complex large projects where there are so many activities that occur, must be done in an integrated and planned scheduling so that every activity that can be done in accordance with the planning that has been carried out in the stacking [4]. Standard time is determined by using all projects and time sources and resources, from all the information and data obtained by the scheduling process so that there will be output consisting of complete report formats looking for time progress [5]. Like Barchart, Network Planning, S Curves and Earned Value curves. The results of monitoring of reports in the above formats, need to be evaluated and corrected by proving the data and information so that the time is received according to plan. In this study, the factors of delay which often occur are combined from the above theories and it is expected that the factors that influence the delay in the construction project implementation can be identified. Limitation of the problem in this research is done by focusing on reviewing the implementation of the time management system in construction projects

## 2. Methods

The method used in this study. (a) Identification method, by directly observing the process of carrying out work in the field based on conditions that occur when the research activity takes place, (b) Interview method, conducting question and answer with parties involved in project management to obtain non-technical data. This research is a qualitative descriptive study, which is a case study approach that deals with specific or specific phases of the whole personality. Case study data were obtained from all parties concerned, in 2018 which were collected from various sources. Respondents in this study are project leaders, consultants, contractors, foremen, and other related parties. Secondary data obtained through descriptive facts related to the problem being investigated include project data, journals, and related literature. Data Analysis and Processing This research uses data processing with qualitative analysis. Qualitative analysis aims to analyze the criteria for productivity and duration of work, costs, methods of implementation, work safety, mobilization, access, and the quality of the project.

## 3. Results and discussion

Where work can be done. Good or bad performance based on cost, quality and time produced. Project performance represents the workings of this project by comparing the results of actual work with the assessment of work methods on work contracts agreed by the owner and implementing contractor.

### 3.1. Time management systems,

is planning, organizing, mobilizing and monitoring time productivity. Time management aims at productivity which means the ratio of output to input. Looks and feels like wasting time by following the management function in managing time. Planning ahead of time is not a waste but it provides guidance and direction and even oversight of time [6].

### 3.2. Aspects of time management

The time management system is operational planning and scheduling that is aligned with the project duration that has been set. In this case scheduling is used to control project activities every day. The aspects of time management, namely determining the project scheduling, measuring and making reports of project progress, comparing scheduling with actual project progress in the field, determining the impact caused by comparing the schedule with progress on the field at the end of project completion, planning for handling to overcome these consequences, most recently renewing project scheduling [7]. While aspects of time management itself are sequential processes with one another.

### 3.3. Analysis of the implementation of time management

Analyzing or evaluating is not only done at the end of the project, but can also be done at any time if the project has seemed to be behind schedule [8]. After receiving progress reports in the field, the information obtained is then compared with project scheduling

### 3.4. Determine project scheduling

PT. Bumi Talaga Sejahtera as the project implementer in 2018 made the project schedule (Master Schedule) one with (Detailed schedule), but the way of presentation was separated. The master schedule is made for the executive management level, while the Detailed schedule is provided for the needs of the implementers in the field but it does not rule out the possibility that if the field implementers need a master schedule they can use it because basically the master schedule is the reference for all work implementation processes. In its application, the detailed schedule is divided into smaller parts so that its implementation, monitoring and control can be easier.

### 3.5. Estimated time period

After sorting the activities, PT. Bumi Talaga Sejahtera gives a timeframe for completion of each activity. The time scale used in determining the duration of the activity period is per day and per week. Determination of the period of completion of each activity is carried out not only based on the experience achieved so far but also calculated based on the calculation of resources (materials, equipment, labor) used and the volume of work to be completed. According to PT. Bumi Talaga Sejahtera that influences in determining the duration of an activity that is the capacity of the resources used and the number of effective days of the existing project schedule.

### 3.6. Scheduling

In preparing the schedule of PT. Bumi Talaga Sejahtera uses computer programs, namely Microsoft Project and Microsoft Excel. The duration of the project completion is calculated based on the total time duration of each activity that has been predetermined. After the network is formed, each activity has been given a period of time, then they calculate the overall project completion period. In the schedule and S curve there are some jobs that are late and there are also jobs whose realization has increased from the plan. As in the 4th week the realization increased because there was some work that should have started in the 5th week but it had already begun in the 4th week. Likewise in the 23rd week there was a work plan of 4 weeks in realization which could be carried out for only 3 weeks, and in the first week of direct work can be completed as much as 40% of the plan. Broadly speaking the duration of walking according to plan can be seen directly on the weekly report. As explained above there are some jobs that are late and some that increase from planned realization. Late work is recommended to increase the number of workers so that they can catch up late hours (negative progress) and can be completed according to plan. Late work should be able to crash the program. Examples of program crashes are as in Table 1

**Table 1.** Analysis results.

• Duration of PT. Bumi Talaga Sejahtera from the work of Tiebeam 20/40			
Job Volume	: 60,87 m3	60,87 X 0,66	= 40 OH
1 workings day	: 8 hour	40 : 1	= 40 HK
Labor Coefficient	: 0,66	time required	
power needed	: 1	40 HK	= 5,7 week
• Duration of program crash results on Tiebeam work 20/40			
Job Volume	: 60,87 m3	60,87 X 0,66	= 40 OH
1 workings day	: 8 jam	40 : 8	= 5 HK
Labor Coefficient	: 0,66	: time required	
power needed	: 8	5 HK	= 0,7 week



Table 1. Cont.

• Duration of PT. Bumi Talaga Sejahtera from the work of installing 9 mm gypsum ceiling		
Job Volume	: 1282,69 m3	$1282,69 \times 0,60 = 770 \text{ OH}$
1 workings day	: 8 jam	$770 : 35 = 22 \text{ HK}$
Labor Coefficient	: 0,60	time required :
power needed	: 35	$22 \text{ HK} = 3,1 \text{ week}$
• The Duration of the results of the crash program on the gypsum ceiling installation work 9 mm		
Job Volume	: 1282,69 m3	$1282,69 \times 0,60 = 770 \text{ OH}$
1 workings day	: 8 jam	$770 : 40 = 19 \text{ HK}$
Labor Coefficient	: 0,60	: time required
power needed	: 40	$19 \text{ HK} = 2,8 \text{ week}$

#### 4. Conclusions

In preparing the schedule of PT. Bumi Talaga Sejahtera uses computer programs, namely Microsoft Project and Microsoft Excel. The duration of the project completion is calculated based on the total time duration of each activity that has been predetermined. After the network is formed, each activity has been given a period of time, then they calculate the overall project completion period. From this study the results obtained by the completion of work using time management work can be accelerated as much as 40%.

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PAGE 1

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PAGE 2

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PAGE 3

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PAGE 4

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PAGE 5

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