

**TIME PERFORMANCE ANALYSIS ON SUBALI BRIDGE
CONSTRUCTION PROJECT, SUTOJAYAN DISTRICT (D.G.008),
BLITAR REGENCY WITH EARNED VALUE METHOD
APPROACH**

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Abstract

One of the project types is the Construction Project. The main activity components of this type of project consist of feasibility assessment, engineering design, procurement and construction. In construction projects very often delays occur where the realization in the field does not match the schedule of the implementation plan, due to several factors that occur, even though a careful plan has been prepared but in practice in the field there are still many problems in implementation. The purpose of this study was to determine the performance of time in the implementation that took place from week -1 to week 17 on the Subali Bridge Construction project, Sutojayan Kec. (D.G.008), Blitar Regency using Earned Value. From the results of the analysis it can be seen that the costs incurred are lower than the planned costs, this can be seen in the CPI value of 1.28 while the implementation time is slower than the planned schedule indicated by the SPI value of 0.71.

Keywords: Earned value, Cost, Time, Delay.

1. INTRODUCTION

One of the project types is the Construction Project. The main activity components of this type of project consist of feasibility assessment, engineering design, procurement and construction. The product is the construction of bridges, buildings, ports, highways, and so on. These construction projects are increasingly complex and sophisticated and involve the use of resources in the form of human labor, materials, equipment and funds that are increasing in number. In a construction project, there are several parties involved in it. (Dimiyati & Nurjaman, 2014).

Project cost management is a control on the project to ensure project completion can be in accordance with the cost budget that has been provided. While project time management is a process of planning, compiling, and controlling the schedule of project activities, where in planning and scheduling specific guidelines have been provided to complete project activities more quickly and efficiently. (Source: PMBoK, 2008).

One of the project control methods is the Earned Value Method. This Earned Value concept is a concept of calculating the cost budget according to the work that has been completed. In other words, this concept measures the amount of work that has been completed, at a certain time, when assessed based on the amount of budget available for the work. For this reason, the relationship between what has been achieved physically and the amount of budget that has been spent can be known.

Based on the results of the calculation of the Screen Venue Development project planning in DKI Jakarta using Microsoft Project software, and analysis of the project evaluation discussion, the cause of the delay in the Screen Venue Development project in

DKI Jakarta is due to the delay in the arrival of tools and materials, unfavorable weather conditions, as well as less and unproductive labor and equipment available and based on calculations using Microsoft Project, the maximum acceleration of the Screen Venue Development project in DKI Jakarta on the critical path is carried out for 12 days. However, the project is still experiencing delays. So that the work that has not been completed, is done during maintenance. (Fatricia Ariane, Dwi Dinariana, 2018).

Project performance control using earned value is carried out at the beginning of the project until the end of the 15th month of project implementation. The results of this study indicate that until the end of the 15th month, the project implementation resulted in good cost performance, characterized by a CPI value of 1.10, but the project schedule performance was not good as indicated by the SPI value of 0.97. If the project continues to be implemented in accordance with the existing performance, the final cost of the project can achieve an efficiency of 8.9% of the planned cost but the project is delayed by 5.8% of the planned schedule. This research shows that the application of the earned value concept to the case study project can provide a comprehensive overview of the project performance status. (Susanti et al., 2019).

In a construction project there are various stages related to construction management, in which there are various problems regarding the management of costs and time for work implementation, so that in its implementation a system is needed for cost management (Cost Management) and time management (Time Management) so that in its implementation, the project can be completed on time as planned and the costs incurred according to the needs of the project being carried out. (Ariane & Dinariana, 2018) In writing this article, the main studies are, how is the project performance in terms of cost and time, how is the application of EVA (Earned Value Analysis) to forecast the final cost and time of completion on the project, is there any profit or loss that may occur in the completion of the PT Graha Praja Kencana Residential Building Construction project in Ceguk Village, Tlanakan District, Pamekasan Regency? To answer this problem, research was conducted with a qualitative approach with a descriptive type. Data sources were obtained through interviews, observations, and documentation with respondents, namely consultants, contractors, and the Director of PT Graha Praja Kencana. From the results of data analysis, it can be concluded that it shows that the costs incurred are lower than the planned budget, the project implementation time is on schedule from the initial planning, the costs incurred each week from week 1 to week 9 have increased very significantly, and the profit obtained by the contractor until the end of the project from week 1 to week 9 amounted to Rp. 8,978,737.20.

Based on the results of the BCWS calculation, it is found that with the increase in work time, the cost of implementation will also increase. For the results of the BCWP calculation, it was found that the time taken was 97% of the planned time, and the budget almost touched the budget of Rp.19,000,000,000.00. For the ACWP results, there is a difference in budget, where the total budget at BCWS is greater than the total BCWP budget, it illustrates that the work that has been done is less than the plan, from these results it illustrates that the project does not experience losses. For SV results, it can be seen that the project has been carried out for 37 weeks, it has not run optimally in terms of time, because 15 weeks of them are not in accordance with the planned schedule. Budget deviations also occurred for 37 weeks, not too large, namely -0.9704% of the initial contract value. For the SPI results, it shows that the project has been running for 37 weeks, but in week 2 to week 4, week 14 to week 15, and week 21 to week 37 is not

good. Therefore, it is necessary to accelerate so that the project can be completed according to the planned time. However, when viewed from the initial project work contract, based on information in the field, the project completion is still according to plan, namely 37 weeks. (MH, 2021).

In knowing the results of performance performance on project implementation can use analysis starting with getting the value of the various indicators needed in each review, from the results of the analysis in the 13th week the results of BCWS = Rp. 1.108,129,005; BCWP = Rp. 1,002,241,315; ACWP = Rp. 955,926,447, and CV = Rp. 46,314,868; SV = - Rp. 105,887,689; CPI = 1.05; SPI = 0.90; etc = Rp. 992,399,101; EAC = Rp. 1,948,325,548.36; ETS = 139.312 Days; EAS = 231 Days. And the results of the Earned Schedule (ES) indicator in week 13 = 12.145 Weeks; SV(t) = -0.855 Weeks; SPI(t) = 0.93. The project studied using the EV (Earned Value) method has a late status with an initial planned duration of 217 days and the final duration of the work being 236 days. from the results of this analysis, the planned completion time is slower and the cost is less than the contract value and the calculation of the EV (Earned Schedule) is that the project is running worse than originally planned. The result of the performance index value < 1 then the project needs to make performance improvements. (Sakinah, 2021).

The General Ahmad Yani Semarang Airport Access Flyover Construction Project has a contract value of Rp. 149,394,103,000, - with a work duration of 46 weeks. The progress of the work until this research was made had reached the 37th week with a deviation of -8.574%, based on this, it is necessary to control the implementation of the project so that it is carried out on time and at the right cost. The method used in the control is the earned value method, which is the control of cost and time to determine the delays and cost overruns that occur (MH, 2021). The data needed includes general project data (contract value), S curve, and HSPK Semarang City in 2020. From the analysis, it can be seen that the costs incurred are lower than the planned costs, this can be seen in the CPI value of 1.105 while the implementation time is slower than the planned schedule indicated by the SPI value of 0.893. The results of the calculation of the estimated project cost of Rp 135,258,208,412.97 with an estimated completion time of 52 weeks, showed that the project was delayed for 6 weeks from the planned 46 weeks (Junaidi et al., 2022).

The East Java Provincial Inspectorate Building Phase II Project has an important role in the implementation of government affairs. Therefore, this project is expected to be completed on time and can be used by the local government. To achieve this, a method is needed that can control an ongoing project. Earned Value Method is one of the methods that can be used to control a project. (Susanti et al., 2019) The application of the Earned Value Method can integrate aspects of cost, time and work performance. Project performance is analyzed based on cost and time performance indices (Amin et al., 2019). Calculations are based on plan value (BCWS), earned value (BCWP), and actual cost (ACWP). Control is reviewed for 18 weeks, namely week 1 to week 18. After analyzing using the Earned Value Method, the results obtained in week 18 show that the costs incurred are greater than the planned costs and the implementation time is longer than planned with a value of CPI = 0.910346 (CPI < 1) and SPI = 0.71278826 (SPI < 1). The results of the calculation of the estimated final cost of the project amounted to Rp 24,749,232,344.50 with a project completion time of 227 days which means it is later than the schedule.

2. RESEARCH METHODS

In this study, the project being analyzed is the Subali Bridge Construction project, Sutojayan Kec. (D.G.008), Blitar Regency. Budget year 2023 and research time, in 2023. This research was conducted on the Subali Bridge Construction Project, Sutojayan Subdistrict (D.G.008), Blitar Regency, for data collection as research material obtained from parties related to this work, the data collection method used in this research is secondary data and literature study. The following is the data data needed in the preparation of this study, as for the data in question is the Cost Budget Plan (RAB), the planned and actual Time Schedule, the Weekly Report or Progress Report.

The stages in data analysis are a sequence of steps carried out systematically and logically according to the theoretical basis of the problem so that an accurate analysis is obtained to achieve the researcher's objectives. The steps taken are to determine the problems that occur in the Subali Bridge Construction Project, Sutojayan Kec. (D.G.008), Blitar Regency, collect the necessary data, analyze the performance and final project forecast based on weekly work reporting. Furthermore, calculating the estimated cost and time until the final achievement of the project with a forecast method based on data - data reporting every week on an ongoing basis and then making a new forecast method based on actual conditions and field application.

3. RESULTS AND DISCUSSION

This research focuses on the construction of projects that involve a number of important parameters. The project that is the focus of the research is the construction of the Subali Bridge in Sutojayan District, Blitar Regency, with the identification number D.G.008. The construction process is carried out at the project site located in Sutojayan District, Blitar Regency. The project implementation duration is planned for 114 calendar days, which is equivalent to 17 weeks. This project has a contract value of Rp. 10,502,000,000.00, with the project owner being the Public Works and Spatial Planning Office of the Blitar Regency Government. The contractor responsible for the implementation of this project is CV Ayu Tenan, while PT Epithu Logica Sembada is appointed as the supervisory consultant.

The project under study is a project that is being carried out, so the research conducted evaluates the Cost and Time factors only(Thoengsal & Tumpu, 2022). While the quality factor is not carried out research because in the use of the Earned Value Concept Method only discusses the occurrence of project delays from the schedule plan to the actual schedule analyzed so that the project can be completed as expected(Iskandar, 2017). This is done with the aim that in the next project work, the contractor or project implementer will be able to carry out the work better, more efficiently, and more economically, with reference to the previous work, especially in terms of controlling project costs and the length of time for project implementation. Time schedule The plan is obtained from the Cost Budget Plan data which is compiled into a Bar Chart / Gant Chart which is a time schedule arranged in outline, then used as a more detailed Time Schedule plan in the form of an "S" Curve.

Table 1. Time Scedule (Implementation schedule)

TIME SCHEDULE																			
Pembangunan Jembatan Subali Kec. Sutojayan (D.G.008)																			
No. Mula Pembayaran	Uraian	BOBOT (%)	JANGKA WAKTU PELAKSANAAN (114 HARI KALENDER)																KETERA GAN
			BLN 1				BLN 2				BLN 3				BLN 4				
a	b		MG 1	MG 2	MG 3	MG 4	MG 5	MG 6	MG 7	MG 8	MG 9	MG 10	MG 11	MG 12	MG 13	MG 14	MG 15	MG 16	MG 17
	DIVISI 1. UMUM																		
	Mobilisasi	0.58	0.19	0.19															0.46
	Manajemen dan Keselamatan Lalu Lintas	0.11		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Keselamatan dan Kesehatan Kerja	0.13		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Manajemen Mutu	0.61					0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
	DIVISI 2. DRAINASE																		
2.1.(1)	Galian untuk Selokan Drainase dan Saluran Air	0.07		0.02	0.02	0.02													
2.3.(35)	Pengadaan & Pemasangan U-Ditch 60/80-120cm + Cover (BG. 20 Ton)	1.38							0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
2.5.(1)	Pengadaan dan Pemasangan BC 600/600/100/12.5 CM (G. 20 Ton)	0.34										0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
	DIVISI 3. PEKERJAAN TANAH DAN GEOSINTETIK																		
3.1.(1)	Galian Biasa	0.05		0.02	0.02														
3.1.(4)	Galian Struktur dengan kedalaman 0-2 meter	0.63				0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
3.1.(9)	Galian Perkerasan berbujur	0.01		0.01															
3.2.(2a)	Timbunan Pilihan dari sumber galian	0.97											0.97	0.97	0.97	0.97	0.97	0.97	0.97
3.3.(1)	Penyiapan Badan Jalan	0.02													0.02	0.02	0.02	0.02	0.02
	DIVISI 5. PERKERASAN BERBUTIR																		
5.1.(1)	Lapis Pondasi Agregat Kelas A	1.13									0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
	DIVISI 6. PERKERASAN ASPAL																		
6.1.(1)	Lapis Resap Pengikat - Aspal Cair/Emulsi	0.08															0.04	0.04	0.04
6.1.(2a)	Lapis Perekat - Aspal Cair/Emulsi	0.03															0.02	0.02	0.02
6.3.(5b)	Laston Lapis Aus (AC-WC)	1.06															0.53	0.53	0.53
6.3.(6a)	Laston Lapis Antara (AC-BC)	1.32															0.66	0.66	0.66
	DIVISI 7. STRUKTUR																		
7.1.(5a)	Beton struktur, f'c 30 MPa (untuk Pelat Lantai)	1.44															1.44	1.44	1.44
7.1.(5a)	Beton struktur, f'c 30 MPa (untuk Pelat Injak)	0.19													0.09	0.09	0.09	0.09	0.09
7.1.(5a)	Beton struktur, f'c 30 MPa (Beton Volume Besar untuk Abutmen)	4.38								1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
7.1.(5a)	Beton struktur, f'c 30 MPa (untuk Wingwall)	0.29									0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
7.1.(5a)	Beton struktur, f'c 30 MPa (untuk Pile Cap Dinding Penahan Tanah)	0.28						0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
7.1.(7a)	Beton struktur, f'c 20 MPa	0.58							0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
7.1.(10)	Beton, f'c 10 Mpa	0.08					0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
7.3.(1)	Baja Tulangan Polos-B/TP 280	0.21				0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
7.3.(3)	Baja Tulangan Sirip BJTS 420A	14.77						1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48
7.4.(3)	Penyediaan Struktur Jembatan Rangka Baja Standar Panjang 50 m	51.32											2.00	12.00	15.46	11.46	0.39	0.39	0.39
7.4.(4)	Pemasangan Jembatan Rangka Baja Standar Panjang 50 M	3.67												0.92	0.92	0.92	0.92	0.92	0.92
7.6.(11b)	Penyediaan Tiang Pancang Beton Bertulang Pracetak ukuran 200 mm x 200 mm	0.24					0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
7.6.(17b)	Pemancangan Tiang Pancang Beton Bertulang Pracetak ukuran 200 mm x 200 mm	0.07						0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
7.6.(19a)	Tiang Bor Beton, diameter 800 mm	11.94							2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99
7.9.(1)	Pasangan Batu	1.61										1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
7.14.(1)	Papan Nama Jembatan	0.00	0.00																
7.15.(1)	Pembongkaran Pasangan Batu	0.18		0.18															
	DIVISI 9. PEKERJAAN HARIAN & PEKERJAAN LAIN-LAIN																		
9.2.(1)	Marka Jalan Termoplastik	0.03																	0.03
9.2.(5)	Patok Pengarah	0.04								0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
9.2.(14)	Unit Lampu Penerangan Jalan Lengan Tunggal, Tipe LED	0.14																	0.14
		100.00																	
	Kemajuan Pekerjaan (%)		0.20	0.44	0.07	0.49	1.97	4.89	5.19	6.36	8.28	15.77	17.11	17.97	13.99	4.37	1.27	1.27	0.36
	Kemajuan Pekerjaan Kumulatif (%)	-	0.20	0.64	0.71	1.20	3.17	8.07	13.25	19.61	27.89	43.66	60.77	78.74	92.73	97.10	98.37	99.64	100.00
	Realisasi Pekerjaan (%)	-	0.41	0.65	0.19	1.33	2.46	5.90	3.81	6.14	4.88	13.60	3.87						
	Realisasi Pekerjaan Kumulatif (%)	-	0.41	0.65	0.84	2.17	4.63	10.53	14.34	20.48	25.36	38.96	42.83						
	Deviasi Pekerjaan (%)	-	0.21	0.01	0.13	0.97	1.46	2.46	1.09	0.87	(2.53)	(4.70)	(17.94)						

In each week starting from week 1 to week 11, where the calculation is highly dependent on the available S Curve data. from the results of monitoring the S Curve there is a minus deviation starting from week 9 to week 11, based on this the analysis is carried out in week 11.

Table 2. Recapitulation of Work Progress

NO.	URAIAN	PROGRES PEKERJAAN			RENCANA ANGGARAN BIAYA (RAB)	REALISASI ANGGARAN PELAKSANAAN
		Rencana (%)	Realisasi (%)	Deviasi (%)		
1	MINGGU KE 1	0.20	0.41	0.21	42,533,100.00	41,527,479.23
2	MINGGU KE 2	0.64	1.06	0.42	111,008,830.27	104,612,298.45
3	MINGGU KE 3	0.71	1.25	0.54	130,984,264.15	119,349,852.73
4	MINGGU KE 4	1.20	2.58	1.38	270,870,904.15	218,592,798.54
5	MINGGU KE 5	3.17	5.04	1.87	529,220,104.15	400,062,068.44
6	MINGGU KE 6	8.07	10.93	2.87	1,148,347,530.07	832,315,260.79
7	MINGGU KE 7	13.25	14.75	1.50	1,548,788,790.07	1,138,732,016.20
8	MINGGU KE 8	19.61	20.89	1.28	2,193,501,219.69	1,692,609,486.48
9	MINGGU KE 9	27.89	25.77	- 2.13	2,705,998,819.69	2,110,309,303.24
10	MINGGU KE 10	43.66	39.37	- 4.29	4,134,270,819.69	3,228,218,473.51
11	MINGGU KE 11	60.77	43.24	- 17.54	4,540,698,219.69	3,549,473,448.76

Source: Company data

Table 3. Indication of Analysis Based on CV and SV

Minggu ke	BCWP	BCWS	ACWP	CV	SV	Indikasi
				BCWP-ACWP	BCWP-BCWS	
1	42,533,100.00	20,924,750.03	41,527,479.23	1,005,620.77	21,608,349.97	Pekerjaan terlaksana lebih Cepat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (a head schedule, under cost)
2	111,058,650.00	67,350,530.10	104,778,798.45	6,279,851.55	43,708,119.90	Pekerjaan terlaksana lebih Cepat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (a head schedule, under cost)
3	130,984,264.15	74,572,968.67	119,782,752.73	11,201,511.43	56,411,295.48	Pekerjaan terlaksana lebih Cepat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (a head schedule, under cost)
4	270,870,904.15	126,068,487.08	218,692,698.54	52,178,205.61	144,802,417.07	Pekerjaan terlaksana lebih Cepat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (a head schedule, under cost)
5	529,220,104.15	333,347,587.07	400,494,968.44	128,725,135.71	195,872,517.08	Pekerjaan terlaksana lebih Cepat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (a head schedule, under cost)
6	1,148,347,530.07	846,991,556.07	834,746,160.79	313,601,369.28	301,355,974.00	Pekerjaan terlaksana lebih Cepat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (a head schedule, under cost)
7	1,548,788,790.07	1,391,535,288.00	1,236,307,895.03	312,480,895.04	157,253,502.07	Pekerjaan terlaksana lebih Cepat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (a head schedule, under cost)
8	2,193,501,219.69	2,059,502,922.75	1,695,439,986.48	498,061,233.21	133,998,296.95	Pekerjaan terlaksana lebih Cepat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (a head schedule, under cost)
9	2,705,998,819.69	2,929,204,813.67	2,112,906,703.24	593,092,116.46	- 223,205,993.98	Pekerjaan terlaksana lebih lambat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (behind schedule, under cost)
10	4,134,270,819.69	4,585,190,393.88	3,230,649,373.51	903,621,446.18	- 450,919,574.19	Pekerjaan terlaksana lebih lambat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (behind schedule, under cost)
11	4,540,698,219.69	6,382,389,900.42	3,551,837,748.76	988,860,470.93	- 1,841,691,680.73	Pekerjaan terlaksana lebih lambat dari pada jadual rencana, biaya lebih rendah dari pada rencana anggaran. (behind schedule, under cost)

The results of the above calculations in week 11 are as follows:

BCWP = Rp. 4,498,165,119.69

BCWS = Rp. 6,382,389,900.42

ACWP = Rp. 3,551,837,748.76

CV = Rp. 988,860,470.93

SV = Rp. - 1,841,691,680.73

From the results of CV and SV, it can be seen that the indications that occur are: the implementation of the work above is slower than the schedule plan, while the costs incurred are lower than the Cost Budget Plan (Behind Schedule, Under Cost).

The Project Cost Performance Index value can be seen from the results of the following calculations:

CPI = BCWP: ACWP

SPI = BCWP: BCWS

Table 4. Calculation Indication

CPI BCWP/ACWP	Indikasi	SPI BCWP/BCWS	Indikasi
1.02	Memperoleh Keuntungan	2.03	Mengalami Kecepatan
1.06	Memperoleh Keuntungan	1.65	Mengalami Kecepatan
1.09	Memperoleh Keuntungan	1.76	Mengalami Kecepatan
1.24	Memperoleh Keuntungan	2.15	Mengalami Kecepatan
1.32	Memperoleh Keuntungan	1.59	Mengalami Kecepatan
1.38	Memperoleh Keuntungan	1.36	Mengalami Kecepatan
1.25	Memperoleh Keuntungan	1.11	Mengalami Kecepatan
1.29	Memperoleh Keuntungan	1.07	Mengalami Kecepatan
1.28	Memperoleh Keuntungan	0.92	Mengalami Keterlambatan
1.28	Memperoleh Keuntungan	0.90	Mengalami Keterlambatan
1.28	Memperoleh Keuntungan	0.71	Mengalami Keterlambatan

In Week 11 it can be seen that the project is profitable. This can be seen from the positive Cost Variant (CV) value of Rp. 988,860,470.93 or the Performance Index Value of $1.28 > 1$. While the project is experiencing delays in implementation, this is indicated by the negative Schedule Variant (SV) indicator of Rp. - 1,841,691,680.73 or the Schedule Performance Index (SPI) = $0.71 > 1$.

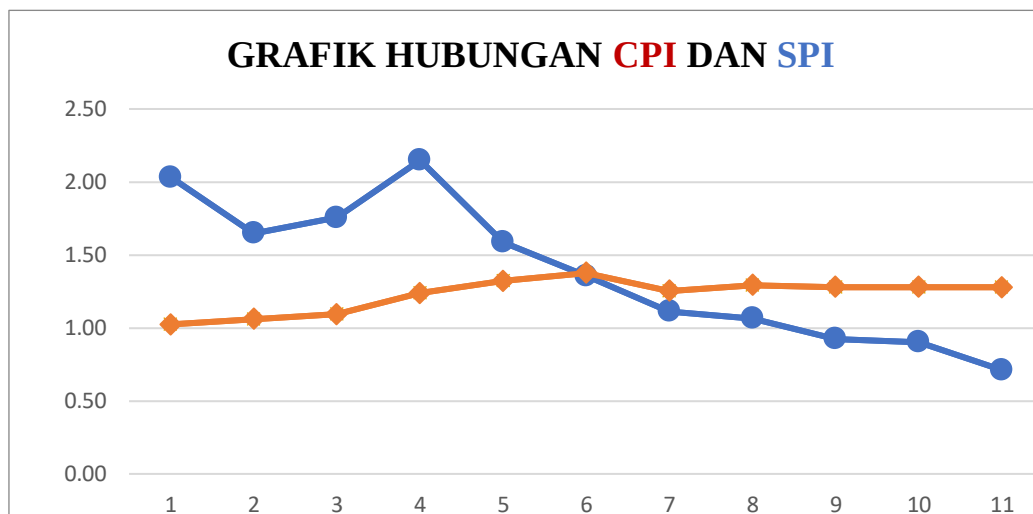


Figure 1. Relationship between CPI and SPI

As for the schedule aspect, the estimate to complete the project can be calculated in the following way:

ETS = Remaining Time: SPI

EAS = Finish Time + ETS

Table 5. Calculation Indications Based on ETS and EAS

ETS	EAS	Indikasi			
Sisa Waktu/SPI	Waktu Selesai + ETS				
7.87	8.87	Kecepatan selama	8.13	Minggu	
9.10	11.10	Kecepatan selama	5.90	Minggu	
7.97	10.97	Kecepatan selama	6.03	Minggu	
6.05	10.05	Kecepatan selama	6.95	Minggu	
7.56	12.56	Kecepatan selama	4.44	Minggu	
8.11	14.11	Kecepatan selama	2.89	Minggu	
8.98	15.98	Kecepatan selama	1.02	Minggu	
8.45	16.45	Kecepatan selama	0.55	Minggu	
8.66	17.66	Kelambatan selama	-0.66	Minggu	
7.76	17.76	Kelambatan selama	-0.76	Minggu	
8.43	19.43	Kelambatan selama	-2.43	Minggu	

Which means the remaining time to complete the work is 19.43 weeks which means the project will experience a delay of 2.42 weeks from the planned schedule of 17 weeks.

At the end of the 11th week period, an evaluation of the project's cost performance using the Cost Performance Index (CPI) was carried out. In the calculation, it was found

that the CPI value of the project was 1.28. This CPI value indicates that the project achieved an efficiency of 21.78%. This means that the project managed costs well and generated savings of 21.78% from the previously set cost estimate.

In addition, the project implementation time was also evaluated using the Time Performance Index (SPI). In the calculation, it was found that the SPI value of the project was 0.71. This SPI value indicates that the project experienced delays in implementation. This means that the project was unable to complete the work according to the pre-set schedule.

Thus, although this project managed costs efficiently, there were delays in project implementation. This needs to be a concern so that the project can be completed immediately according to the predetermined schedule. This evaluation is important to ensure that the project continues to run well and can achieve the goals that have been set. From the results of the analysis, it can be concluded that the Subali Bridge Construction project in Sutojayan District (D.G.008), Blitar Regency experienced delays in its implementation. This can be caused by various factors, such as errors in planning, delays in procurement of materials and equipment, problems in coordination and communication between the parties involved in the project, and environmental factors such as bad weather or natural disasters.

4. CONCLUSION and SUGGESTIONS

4.1 CONCLUSION

From the results of the project cost performance analysis, it can be concluded that this project achieved an efficiency of 21.78%. This means that the project cost expenditure is lower than it should be, so this project has managed to save some costs. However, from the analysis of the project implementation time, it can be seen that this project is experiencing delays. The SPI calculation shows that the project only achieved 71% of the planned schedule. Thus, the project still required an additional 19.43 weeks to complete the remaining work. In this context, the project is expected to be delayed by 2.42 weeks from the planned schedule of 17 weeks.

4.2 SUGGESTIONS

The control process should be carried out from the beginning of the project, which, if implemented, will result in the work being ahead of schedule. By starting the control process from the beginning of project implementation, the implementation team can identify and overcome problems or obstacles that may arise before they become more complex and difficult to manage. Thus, work can run ahead of the planned schedule because problems can be addressed quickly and do not interfere with the overall progress of the project. In addition, by starting control from the beginning, the implementer will also benefit from the budget plan that has been set. By regularly monitoring and controlling project expenditure, the implementation team can identify and reduce the risk of budget overruns. This will help them to manage resources more efficiently and avoid unnecessary waste.

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