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TIME SCHEDULING AND COST OF THE INDONESIAN NAVY SHIP DEVELOPMENT PROJECT USING NETWORK DIAGRAM AND EARNED VALUE METHOD (EVM) (CASE STUDY OF FAST MISSILE BOAT DEVELOPMENT) Ahmadi¹, Suparno², Okol Sri Suharyo³, Arica Dwi Susanto⁴^{1,3,4} Indonesian Naval Technology College, STTAL. Bumimoro-Morokrembangan, Surabaya 60187, Indonesia² Sepuluh Nopember Institute of Technology, ITS Raya ITS, Keputih, Sukolilo, Surabaya 60111, Indonesia ABSTRACT Missile Boat is one of Indonesian Navy Warship (KCR-60) which has a length of 60 meters and made domestically by Indonesian people at the PT. X in Surabaya.

Time delay and cost overruns are the problems in the Missile Boat construction project (KCR-60). The purpose of this research was to schedule the time and cost of the project so that it can be completed on time and there is no swelling of costs for the implementation of the construction of the Missile Boats (KCR-60).

The scheduling method used in this study was Precedence Diagram Method (PDM) on Network Diagram and Earned Value Method (EVM). Precedence Diagram Method (PDM) was used for scheduling the project time and showing the critical trajectory of project activities along with the acceleration time (Crashing Project) while Earned Value Method (EVM) was used to determine the costs and time performance and the factors that cause delays or progress of the project.

The results showed that the project schedule had 13 activities that had a zero slack or critical activities which were in activities 1, 2, 3, 4, 5, 6, 16, 18, 21, 23, 26, 27, 28. There acceleration of time (Crashing Project) by adding hours of work or overtime for 1 hour every day to 21 activities (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19) will

accelerate and reduce the duration of project completion, which was originally 414 days from the completion of the actual work of implementation to 363 days, thus the difference of effectiveness was 51 days (more effective).

Meanwhile, for cost efficiency, based on the analysis of the real cost of project implementation, the amount of Idr. 20.407,094,998, -became Rp. 18,410,738,982, thus it became more efficient by Idr. 2,470,548,998, -.Keywords: Network Diagram, PDM, Crashing Project, EVM, KCR-60.

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