

## ABSTRAK

Setiap hari pembangunan terus dilakukan untuk berbagai kepentingan yang akan bermuara pada tujuan peningkatan kesejahteraan masyarakat. Pekerjaan proyek tidak hanya dilakukan dilapangan tetapi ada pekerjaan pendukung yang dilakukan di lokasi lain seperti pembuatan equipment atau part tertentu yang biasanya dilakukan di *workshop* atau di sub-contrakkan ke pabrikator. Angka keterlambatan penyelesaian proyek di dunia juga sektor pabrikasi di Indonesia cukup tinggi. Dalam penelitian ini akan diteliti penyebab keterlambatan proyek pabrikasi *pressure vessel*, *heat exchanger*, *Storage tank* dan *piping* yang mengambil *benchmarking* di sebuah Pabrikator di Banten. 15 faktor keterlambatan di dapatkan sebagai penyebab keterlambatan. Nilai *Severity*, *Occurrence* dan *Detection* didapatkan dengan melakukan diskusi dengan team. Team terdiri dari personel inti yang terlibat langsung proses pabrikasi yang telah berpengalaman. Penghitungan *Risk Priority Number* (RPN) didapatkan dari perkalian *Severity Occurrence* dan *Detection* ( $S \times O \times D$ ) sebagai bagian dari proses FMEA (*Failure Mode and Effect Analisys*). Fuzzy FMEA digunakan untuk menghilangkan asumsi bias pada proses FMEA sebelumnya sehingga didapatkan Rangking keterlambatan baru yang disebut FRPN (*Fuzzy Risk Priority Number*). Rangking 2 besar area perbaikan diusulkan karena mempunyai FRPN yang tertinggi. Ketiga area perbaikan tersebut adalah (1) pembelian barang terlambat karena barang impor. (2) *welding* jelek atau repair karena Kendala alam (Angin, Suhu) + Kedisiplinan Tukang las.

Kata kunci : Keterlambatan, FMEA, RPN, Fuzzy FMEA, FRPN.

## **ABSTRACT**

*Every day development continues to be carried out for various interests that will lead to the goal of improving community welfare. Project work is not only carried out in the field but there are supporting jobs carried out in other locations such as making equipment or certain parts which are usually carried out in workshops or sub-contracted to the manufacturer. The number of delays in projects in the world as well as the manufacturing sector in Indonesia is quite high. In this study, we will discuss several reasons for delaying the manufacturing of pressure vessels, heat exchangers, Stotage tanks and piping that took benchmarking at Pabrikator in Banten. 15 factors delay in getting as a cause of delay. Severity, Occurrence and Detection values are obtained by conducting discussions with the team. The team consists of core personnel who are directly involved in the manufacturing process that has been experienced. Calculation of Priority Number Risk (RPN) obtained from the Severity Occurrence and Detection multiplication ( $S \times O \times D$ ) as part of the FMEA process (Failure and Effect Analysis Mode). Fuzzy FMEA is used to eliminate the presumption in the previous FMEA process so that a new delay ranking is called FRPN (Fuzzy Risk Priority Number). Ranking of 2 large areas needs the highest FRPN. The three areas of improvement are (1) purchase of materials late because of material imported. (2) poor welding or repair due to natural constraints (wind, temperature) + disciplinary welders.*

*Keywords:* Delay, FMEA, RPN, Fuzzy FMEA, FRPN.