Risk Analysis of The Logistic Duration in Red Sea Conflict Using Risk Management, FMEA & FTA (Study Case in Distributor Company For Beauty Industry)

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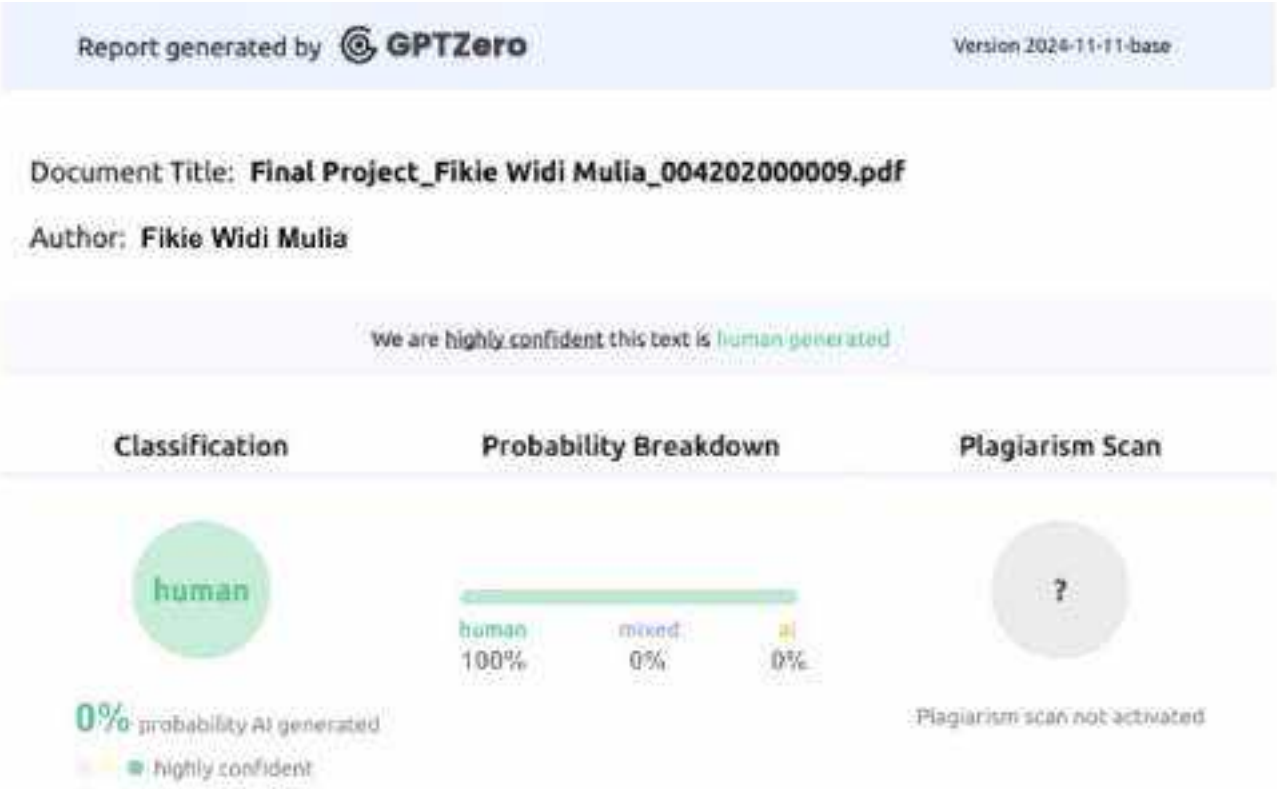

ABSTRACT

Because of the current geopolitical conflict, vessels are compelled to change their customary routes, causing delays that cascade across the global supply chain. This paper examines the risks associated with extended logistics delays induced by the Red Sea conflict, with a specific focus on PT X, one of Indonesia biggest distributor of raw materials for the personal care industry. From 314 total shipments that arrived in PT X January-August 2024, among 230 shipment was delayed. The goal is to identify the cause of the delays and provide alternate ways to reduce the effects of the issue. This paper employs Failure Mode and Effects Analysis (FMEA) and Fault Tree Analysis (FTA) to identify the causes of the delays: challenges in getting timely vessel schedules, restricted container availability, and disruptions in raw material supply caused by broader supply chain issues. To address these challenges, several potential solutions were suggested, such as improving internal staff training to increase flexibility, expanding the logistics network, and holding regular monthly feedback meetings to ensure continuous monitoring and adaptation of the supply chain strategy. By implementing these strategies, PT X can be better handling the disruptions caused by the Red Sea conflict.

Keywords: *Logistic, Supply Chains, Delay, Risk Management, Red Sea, Failure Mode Effect Analysis (FMEA), Fault Tree Analysis (FTA)*

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