OPTIMIZING SUPPLY CHAIN PERFORMANCE THROUGH EFFECTIVE TRANSPORTATION SCHEDULING AND LOADING DOCK ALLOCATION IN FMCG COMPANY

UNDERGRADUATE FINAL PROJECT

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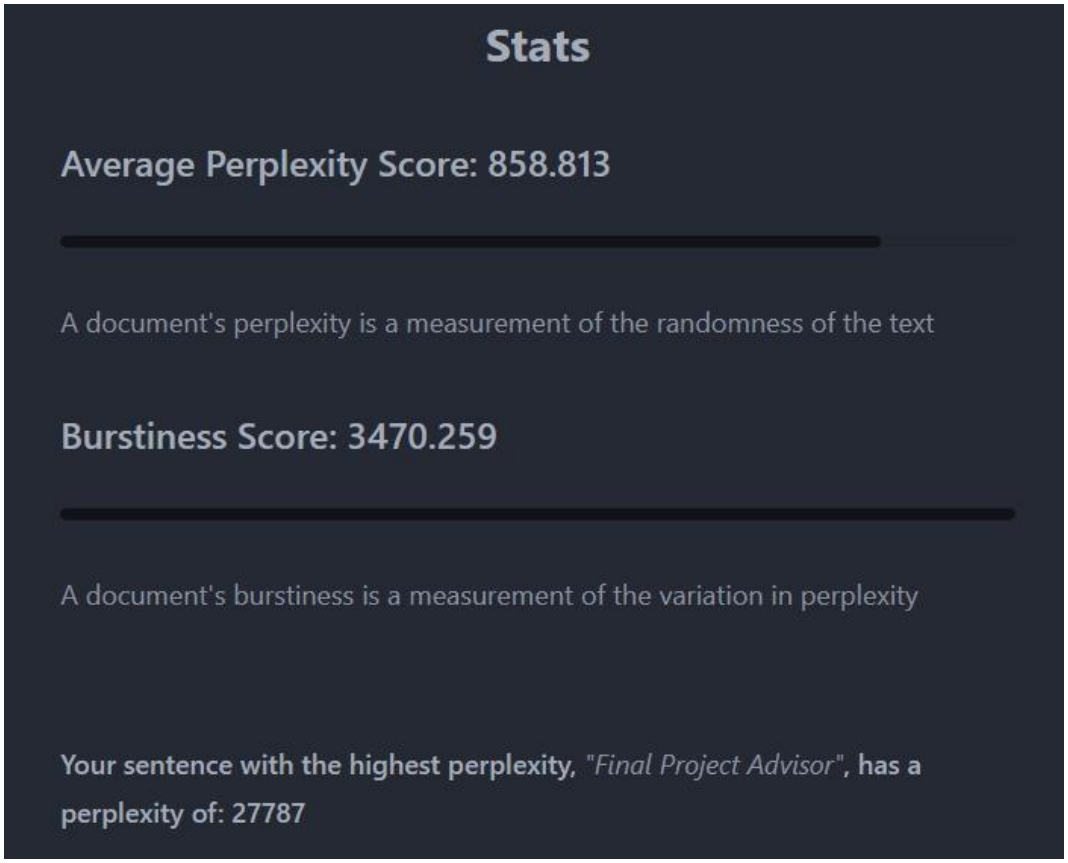
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ABSTRACT

This research is centered on PT SM, an FMCG company specializing in home care products, which is facing challenges in outbound processing, resulting in unfulfilled daily delivery targets. The process loading time for a single shipment is 3 hours, posing a hindrance to handling 120 shipments daily. Consequently, the company achieves only 100 deliveries per day and resorts to weekly overtime. To address this issue, the study adopts the Business Process Improvement (BPI) method and deploys Business Process Model Notation (BPMN) to identify bottlenecks. The results highlight the necessity to regulate Vendor arrivals to enhance the preparedness of warehouse operators. The research introduces a truck regulation arriving system based on the available loading docks and shipment plans in generating the time of arrival for the shipping trucks, intending to reduce the loading time per shipment. Following implementation, the loading time to process a single shipment decreased to 2.7 hours resulting in an increase of delivered shipments per day by 11.35%. Notably, the improvement results in an annual saving of 12% (IDR 1,095,000,000) for PT SM, thus justifying investments by eliminating overtime expenses. This study highlights significant enhancements in PT SM's outbound processes and overall cost-efficiency.

Keywords: Business Process Improvement (BPI), Business Process Model Notation (BPMN), Outbound Logistic, FIFO, Warehouse Operation.

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LIST OF TERMINOLOGIES

Daily Shipment Planning	: The process of planning shipments on a daily basis to ensure that goods are delivered to DC on time and efficiently.
Loading Dock	: An area outside of the warehouse where materials are placed on to be taken off to the truck by forklift.
Overtime	: Additional time worked by an employee outside the working hour. Usually, the pay rate is based on the additional working hours.
Loading Duration	: Amount of time taken to load a truck with goods for shipment delivery.
Handover Period	: A period of information exchange from the previous shift to the next shift.
Material Handling Equipment	: Tools or equipment that are used exclusively to transport materials within the facility.