As operations research analysts at ABSA Oil, our primary responsibility was to organize and optimize the company's purchasing, shipping, and production procedures. In this work, we give a summary of ABSA's planning problem and detail the evaluations that were done as well as the models developed to address these challenges.

This paper aims to provide readers with an in-depth understanding of ABSA's planning challenge.

* To explain the analysis's models and methods.
* To highlight the inadequacies of the models and provide clarification on the assumptions made during the analytical process.
* To offer helpful advice supported by visually striking images.
* To discuss potential extensions of the analysis and identify more data required for next optimization efforts.

The analyses that were conducted focused on three primary models:

* Maximizing Profit Model: Designed to optimize production and procurement choices to maximize profitability while meeting demand constraints.
* Minimized Profit: Designed to optimize production and procurement choices to achieve minimum profitability while meeting demand constraints.
* Minimizing Shipping Cost Model: Shipment scheduling and routing were optimized to save money on transportation.

Each model is developed utilizing a rigorous analytical approach that integrates the necessary assumptions and uses the data that is currently available to provide meaningful insights for ABSA's management.

The suggestions in this paper are intended to assist ABSA in making data-driven decisions that would increase profitability and operational efficiency. These recommendations are based on the outcomes of these models.

The study also looks at potential areas for more examination, stressing the need for additional data to support these advancements as well as the potential for extending the current models.

ABSA will be able to better understand its business operations and apply that understanding to support long-term, sustainable growth with the aid of this research.

Let's analyze the research and recommendations in detail and have a closer look at ABSA's planning problem.