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ENHANCING FORECASTING ACCURACY WITH PROPHET MODELS FOR VENDOR NEGOTIATION STRATEGIES

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ABSTRACT

In the dynamic world of business operations, accurate demand forecasting plays a crucial role in shaping effective vendor negotiation strategies. This research explores the use of Prophet, an advanced forecasting model, to improve the accuracy of predictions related to product demand, thereby optimizing negotiations between businesses and vendors. Traditional forecasting methods often fall short in capturing seasonal trends and irregularities, which can lead to inefficiencies in inventory management and pricing strategies. The Prophet model, developed by Facebook, overcomes these limitations by incorporating multiple components such as seasonality, holidays, and trend changes, making it highly suitable for complex, real-world scenarios.

This study demonstrates how leveraging Prophet can enhance the forecasting accuracy by utilizing historical data to predict future demand patterns. A comparison is made between Prophet-based forecasts and traditional models to assess improvements in prediction accuracy. By providing more reliable demand projections, businesses can enter vendor negotiations with greater confidence, securing better terms and prices. The ability to predict demand fluctuations also aids in inventory optimization, reducing overstocking and stockouts, which directly impacts cost efficiency and customer satisfaction.

The findings suggest that adopting Prophet for forecasting can significantly enhance decision-making in vendor negotiations, creating a competitive advantage for organizations. This research highlights the importance of sophisticated forecasting techniques in modern business practices, providing a framework for businesses to enhance vendor relations and operational efficiency.

KEYWORDS: *Demand Forecasting, Prophet Model, Vendor Negotiations, Forecasting Accuracy, Inventory Optimization, Seasonal Trends, Trend Changes, Pricing Strategies, Business Operations, Predictive Analytics.*