E – COMMERCE DATA ANALYSIS

Project by

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INTRODUCTION

Shopee, a leading e-commerce platform in Southeast Asia and expanding globally, aims to enhance customer experience and increase revenue through targeted marketing and personalized recommendations. This project report provides a comprehensive analysis of Shopee's current customer base, market trends, and product performance, offering insights that can guide strategic decisions to achieve these objectives.

The data provided contains two tables (and an additional table created) with details such as customer demographics, orders, products and the segment information, quantity, shipping cost etc.

The analysis is prepared in Microsoft Power BI. Particularly, Data Modelling, DAX and Power Query were used to connect the tables, create new variables and perform other data transformations.

Data Preparation

1. There was no missing data.

2. New Table with products image urls was created

3. Custom variables and measures were created such as:

   - Age categories: "Youth", "Young Adult", "Middle-Aged Adult", "Senior Adult", and "Elderly"

   - Income bracket: High, Middle and Low

   - Total Revenue = (Purchase[quantity]) * (Purchase[price] * (1 - Purchase[discount])

   - Customer Effective Price = (Purchase[price] - purchase[Total discount] + Purchase[shipping_cost] + purchase[Total Tax])

   - Total Cost to Customer = (Purchase[quantity]) * (purchase[Customer Effective Price])

Through data visualization and business intelligence, key performance indicators (KPIs) were used to derive important information to make business decisions.

CUSTOMER INSIGHTS

1. Shopee currently serves a diverse customer base of 1,001 individuals, with a fairly balanced **gender distribution (51% male, 49% female).**

2. The market is **geographically segmented across Colombia (27.97%), Chile (25.47%), Brazil (23.38%), and Mexico (23.18%).** Each country presents unique opportunities and challenges, with Colombia showing the highest customer representation.

3. The majority of Shopee's customers are **middle-aged adults (316), followed closely by senior adults (312) and young adults (356). The youth segment (17) is significantly smaller**, indicating potential growth opportunities in younger demographics.

The customer base is well-proportioned against all three countries. Given that the sample data is only a thousand customers, the demographic data shows an equal balance in the adult ages, an equal balance in gender and income brackets. The are no signs of demographic bias or skewness in the data.

PRODUCT ANALYSIS
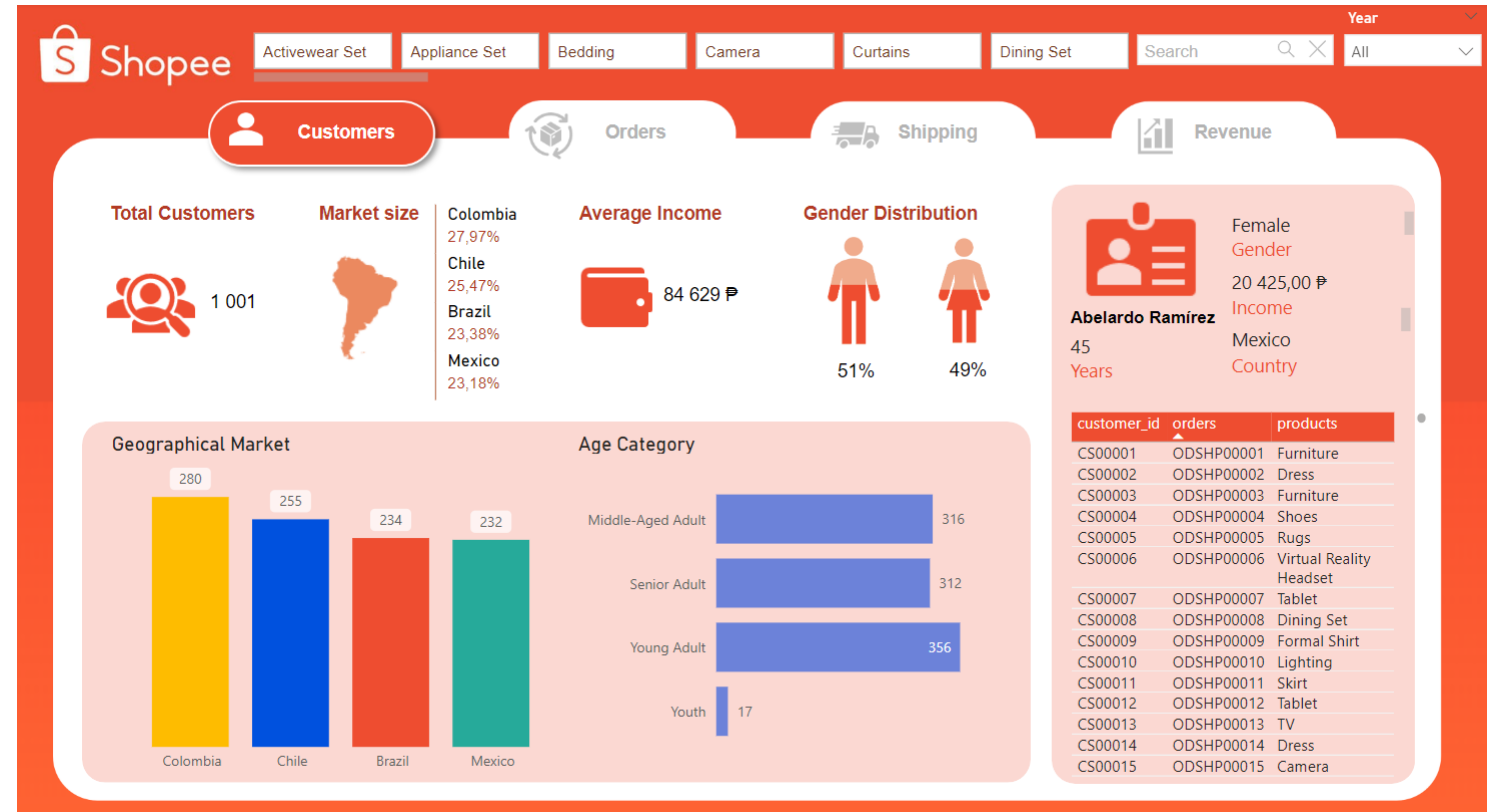
1. Product growth varies across regions, with noticeable differences in consumer behavior and product popularity in Brazil, Chile, Colombia, and Mexico. **Brazil leads in overall gross product growth, followed by Chile, indicating strong market potential in these areas**

2. **Young adults order the most** quantities from Shopee across all regions.

3. Clothing/apparel items such as sports shoes, jeans and jackets are purchased in high quantities showing **high demand of fast fashion.**

While apparel has lower average prices compared to home décor, there is high demand for fast fashion and most orders contain these products. During the global pandemic of 2020, online shopping reached its peak as seen by the fall in gross product growth in the subsequent years.
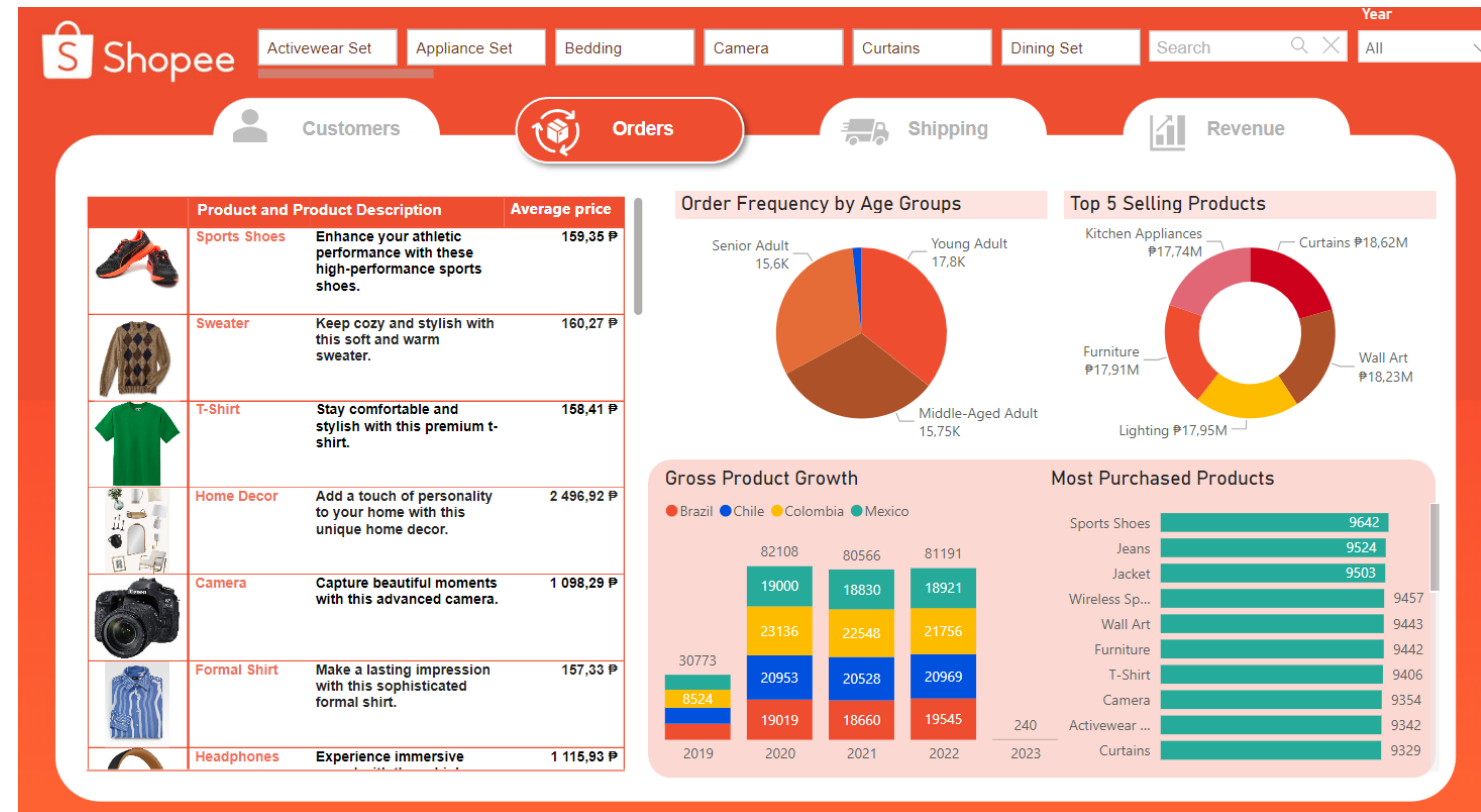
1. The average shipping cost is consistent across markets, with slight variations that may influence customer satisfaction and purchasing decisions. **The average shipping time hovers around 7.46 to 7.53 days, which is competitive but could be optimized further to enhance customer experience.**

2. Assuming all orders are shipped from the warehouse HQ in Singapore, the map shows the movement of orders from this warehouse to the various countries via airfreight.

3. Shopee **ships approximately 45 orders a day**, amounts to about 1300 a month, these **increase significantly during the holiday season in Q4.**
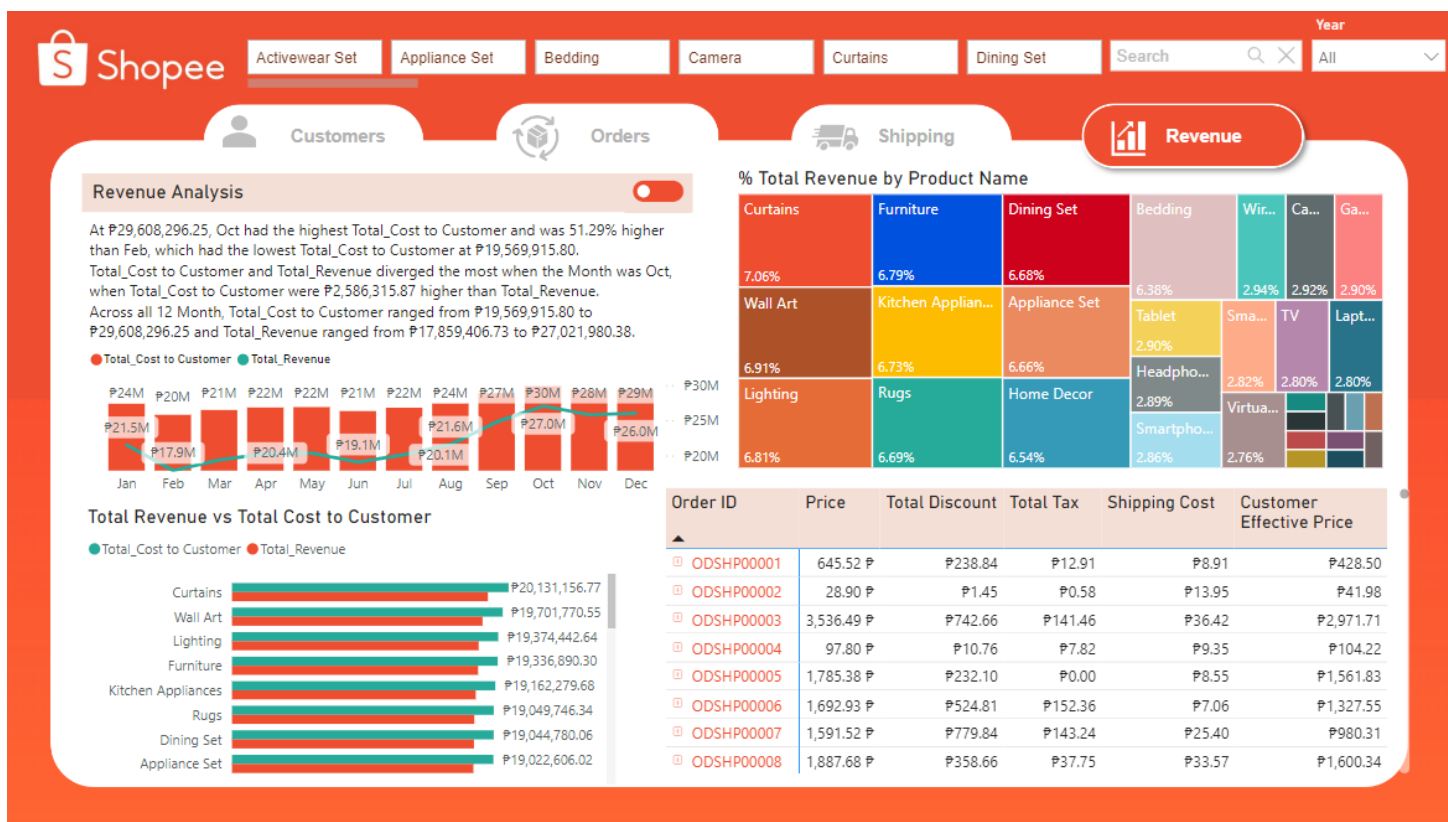
SHIPPING & DELIVERY

Average shipping costs between the 4 countries has a variance of about 0,30 ₱ despite the difference in distances from Singapore to each location, the shipping costs have been standardised. This is also seen in different products, despite differences in weight, there's only a 1 ₱ variance between an appliance set and a dress.
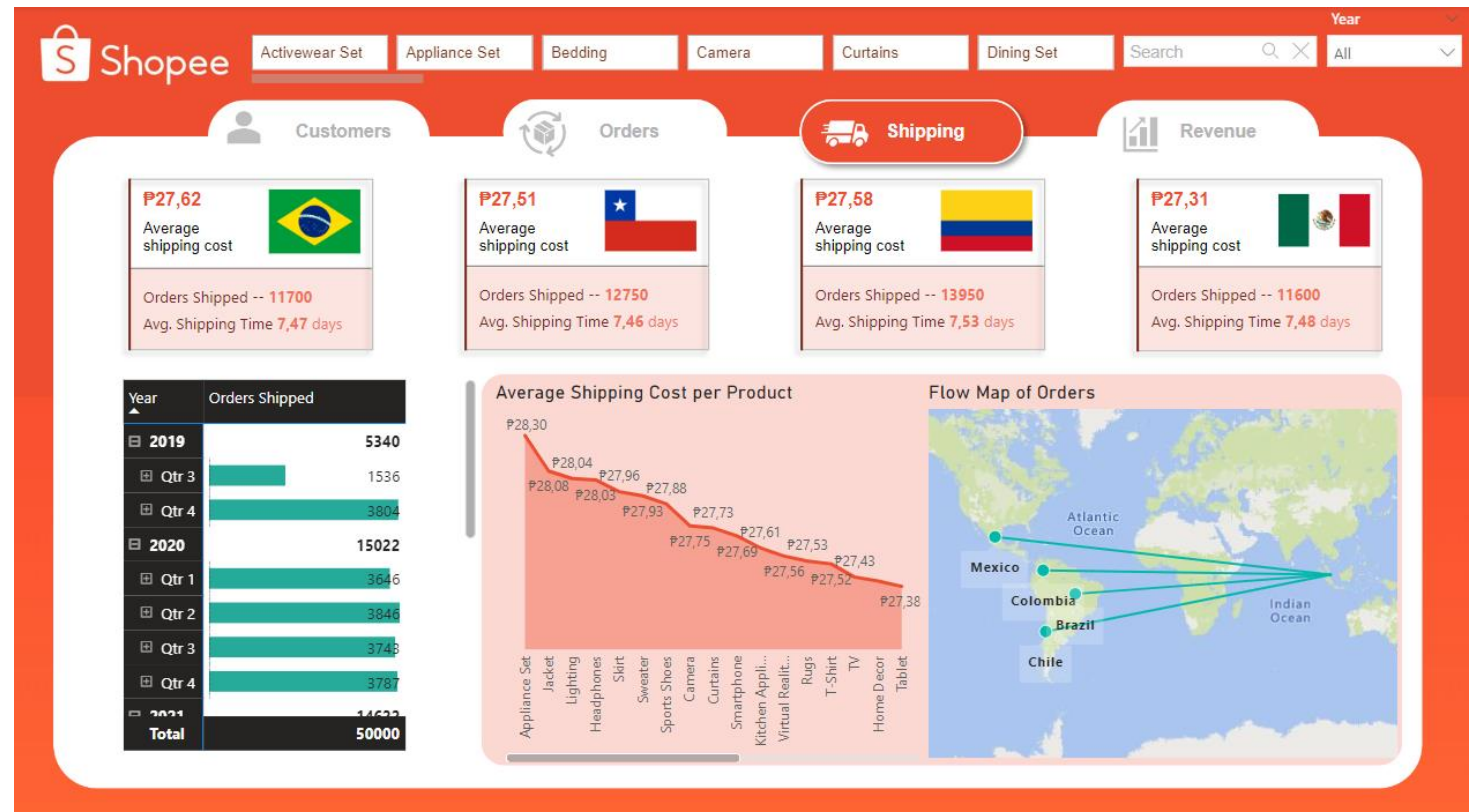
1. The analysis shows a **steady revenue stream throughout the years,** with noticeable peaks in October. The total cost to customers is generally higher than total revenue, suggesting **higher cost burden to the costumer** but also highlighting areas where cost reduction could improve profitability.

2. High-revenue products include **curtains, furniture, and kitchen appliances, indicating strong demand in home improvement categories**. Additionally, sports-related products and apparel like t-shirts and sweaters are among the top sellers, reflecting **customer preferences towards lifestyle and personal care items.**

There are various instances where the customer effective price is lower than the selling price after the discounts, tax and shipping costs are applied. However, on average, the customer ends up paying a higher premium than the selling price, as more discounts are given to high selling items with low demand and almost no discounts are applied to apparel which has more demand.

REVENUE ANALYSIS

Shopee can utilise the customers' purchase history to recommend products while also understanding the segmentation on the customer base for targeted strategies that increase total revenue. Customers that are young adult, medium income earners, and located in Colombia are the most profitable. On the other hand, this also gives insight into areas that need strategy to boost revenue.
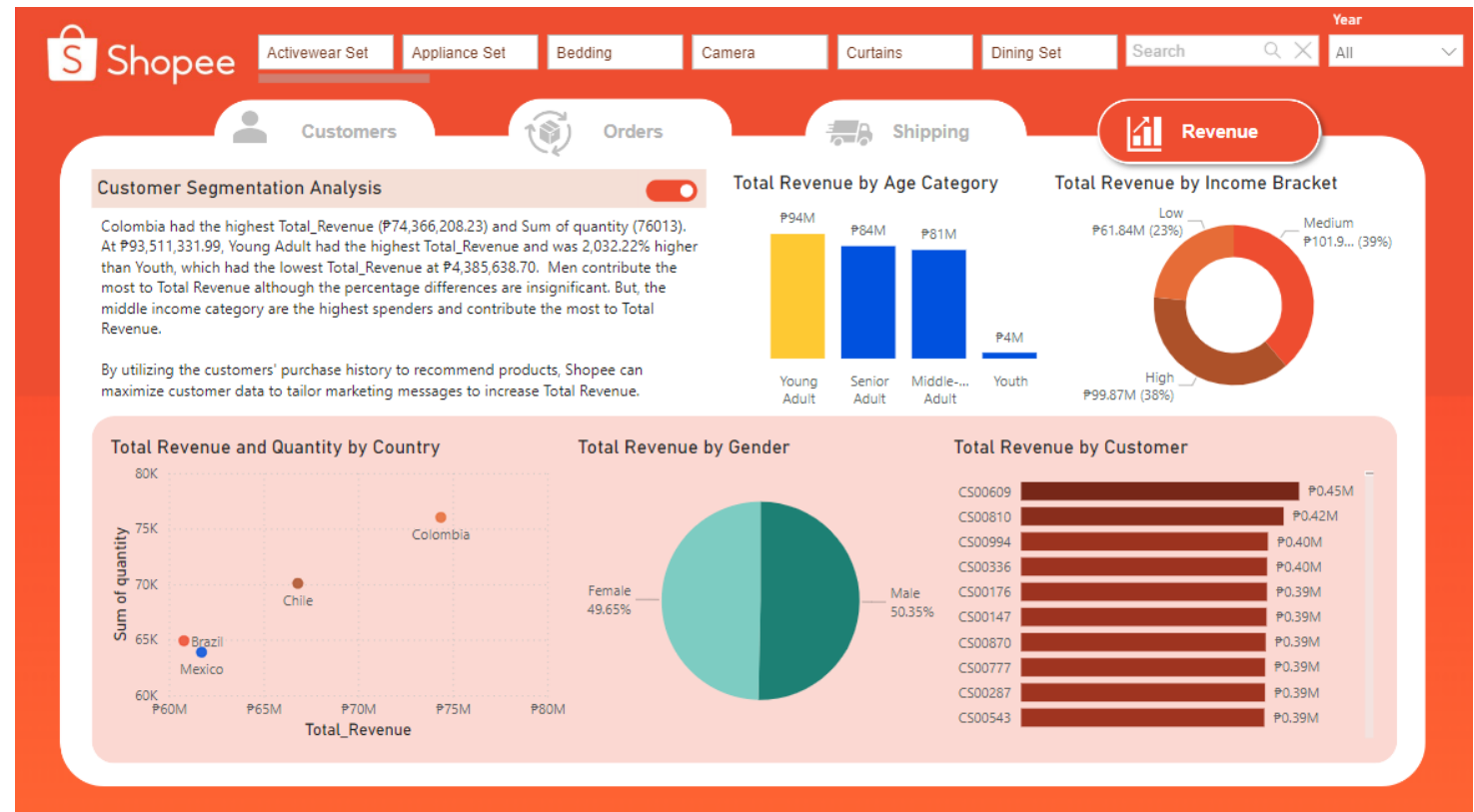
3. **Colombia has the highest total revenue** thus it has the biggest market share, and as expected, the young adults contribute the most to total revenue.

4. Customers in the **medium income bracket contribute the most** to total revenue and high-income earners are a close second.

5. The customers contributing the most to total revenue likely fall in the high-income bracket showing a **correlation between high income earners and a higher revenue** for Shopee.

6. **Gender does not appear to be significant** determent in contribution to total revenue.

RECOMMENDATION

1. **Enhance Targeted Marketing:** Leverage customer demographic data to create personalized marketing campaigns, particularly focusing on underrepresented segments like the youth, to expand Shopee's customer base.

2. **Optimize Product Recommendations**: Utilize the insights from top-performing products to enhance Shopee's recommendation algorithms, ensuring that customers are presented with products that match their preferences and purchasing behavior.

3. **Improve Shipping Efficiency:** Consider strategies to reduce shipping costs and delivery times, which could improve customer satisfaction and potentially increase repeat purchases.

4. **Focus on High-Growth Markets:**

Prioritize investment in high-growth regions like Brazil and Chile, where the demand for Shopee's products is strong, and tailor product offerings to meet the specific needs of these markets.

Conclusion

Shopee is well-positioned to continue its growth trajectory by focusing on enhancing customer experience and leveraging data-driven insights to optimize product offerings and marketing strategies. By targeting the right customer segments and refining operational efficiencies, Shopee can increase its market share and revenue in the competitive global e-commerce landscape.

THANK YOU.

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