

ST2187 Coursework

1488 words, excluding Executive summary, Table of Contents and Texts not in main body.

Table of Contents

- 1. Executive Summary**
- 2. Overall Key Performance Indicators**
 - 2.1. Insights
 - 2.2. Recommendations
- 3. Order Quantity Analysis**
 - 3.1. Insights
 - 3.2. Recommendations
- 4. Demand Forecasts**
 - 4.1. Insights
 - 4.2. Recommendations
- 5. Product Profitability Analysis**
 - 5.1. Insights
 - 5.2. Recommendations
- 6. Customer Analysis**
 - 6.1. Insights
 - 6.2. Recommendations

1. Executive Summary

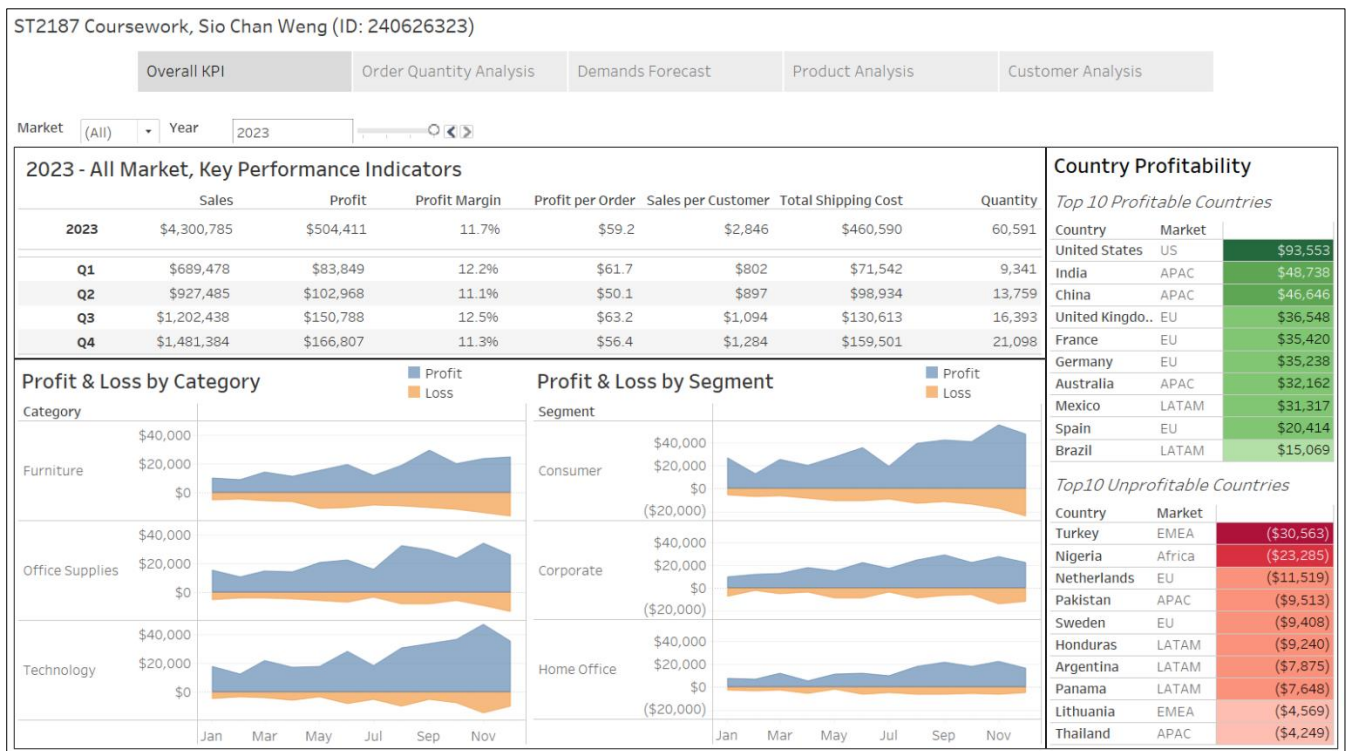
This report aims to provide an in-depth overview of the superstore's global performance in 2023, offering views from different perspectives including market demand and forecasts, product profitability analysis, and customer analysis.

In 2023, the superstore demonstrated strong performance across several key metrics. Total sales increased by 26%, from \$3.4 million in 2022 to \$4.3 million in 2023, while profits rose by 24%, from \$407k to \$504k. Demand was growing across APAC, EU, LATAM, and the US, with the EU market recording a 37.9% growth rate. Technology products in the consumer segment continued to drive profitability, although certain countries such as Turkey, Nigeria, and the Netherlands experienced highest losses. Forecast models further indicate that demand steadily increases from Q1 to Q4, emphasizing the need for careful inventory planning.

Order quantity analysis reveals that the APAC market led with 14k units ordered in 2023, surpassing previous record from the LATAM market, while office supplies remained the most in-demand category. Forecast models predict ongoing growth across all product categories, with office supplies expected to see the highest increase. On the product analysis, technology products yield the highest profits per unit, with notable performers such as the "Canon image" copier and the "Hewlett-Packard" printer. Conversely, the "Cubify CubeX" triple head 3D printer incurred the most losses, suggesting a need for product re-evaluation. Additionally, some high-demand products showed near-zero profits, indicating possible under-pricing. Adjusting pricing strategies for these products can enhance profitability, while discontinuing underperforming products may optimize resource allocation.

Customer analysis shows that the United States continues to hold the highest number of customers, while Australia achieved the highest growth rate of 32% from 2022 to 2023. This suggests that marketing strategies in Australia have been highly effective and may be replicated in other key countries within the same market, such as China and India. It is also shown that the consumer segment remains the largest and most profitable, with forecasts for 2024 expecting continued customer growth, it is recommended to develop more targeted marketing strategies and loyalty programs specifically for the consumer segment to sustain or build on this momentum.

2. Overall Key Performance Indicators

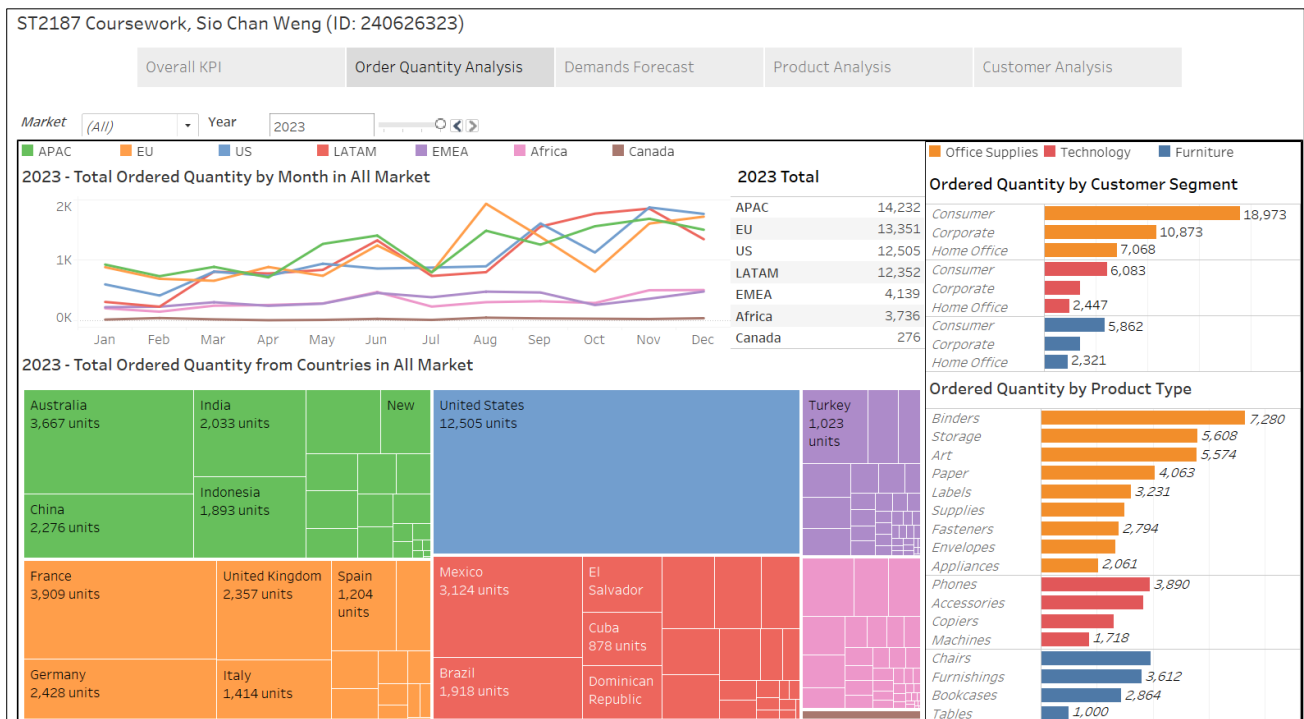


2.1. Insights: By comparing the overall key performance indicators in 2022 and 2023, it is shown that total sales have grown from \$3.4m in 2022 to \$4.3m in 2023 (26% growth), and total profits have grown from \$407k to \$504k (24% growth), while profit margins remained at around 12%, total ordered quantity has also increased from 48k to 60k (26% growth). This rapid increase in sales and profits was largely attributed to the growth in demand and sales across the APAC, EU, LATAM, and the US market, with the highest growth in sales seen in the EU market (37.9% growth). The United States, India, China, and various other European countries have generated the most profits in 2023, while Turkey, Nigeria, and Netherlands have suffered the most losses.

The consumer segment has consistently been the most profitable customer segment over the years, with technological products leading the most profitable category. Some seasonal patterns could be observed in the quarterly performance of each year, particularly, sales and demand start at a low level at Q1 and grow progressively up to Q4. Additionally, the overall level of sales and demand have increased gradually each year.

2.2. Recommendations: Given the growth in demand across the different markets, it is recommended to increase product supply in these markets for 2024, with allocations based on future demand forecasts and profitability of products, which is covered in the next few dashboards.

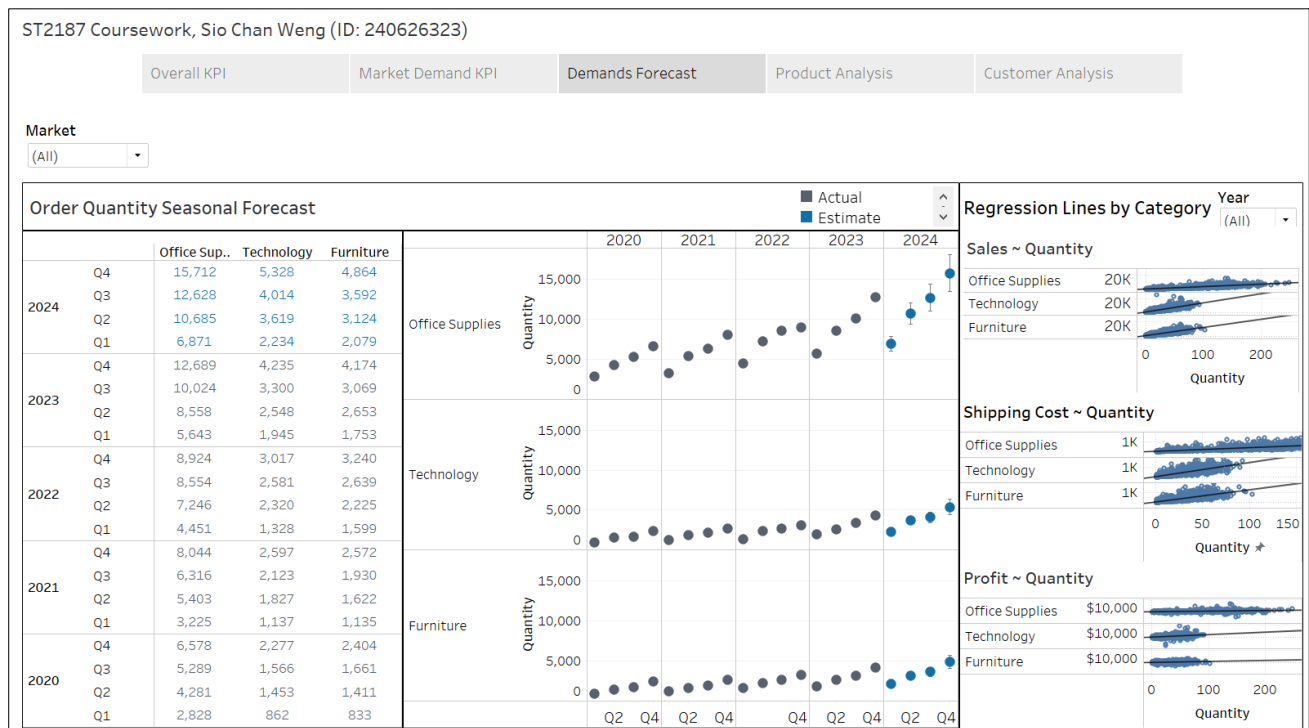
3. Order Quantity Analysis



3.1. Insights: The Order Quantity analysis dashboard provides an analysis of the total ordered quantity of products across different markets and segments. The line chart of total ordered quantity in all markets by months in 2023 reveals that the APAC, EU, US, and LATAM markets experience higher order volumes in Q3 and Q4 compared to Q1 and Q2. In contrast, the EMEA, Africa, and Canada markets maintain stable, lower levels throughout the year, with this pattern remaining consistent annually. The APAC market recorded the highest order quantity, with a total of 14k units ordered, surpassing the previous year's record of 11k units from the LATAM market. The ordered quantity by product category reveals that office supplies have the highest demand across all customer segments in all markets, with binders, storage and art products being the top 3 quantity ordered.

3.2. Recommendations: This dashboard shows that demand has been rising mainly for the four biggest markets (APAC, EU, LATAM and US), and the EMEA, Africa and Canada markets are shown to have weaker performance and growth in demand. It is recommended for management to re-evaluate the marketing position of the superstore in these weaker markets to identify some weaknesses and new opportunities, and whether the current product offerings are suitable for the demands in these markets.

4. Demand Forecasts

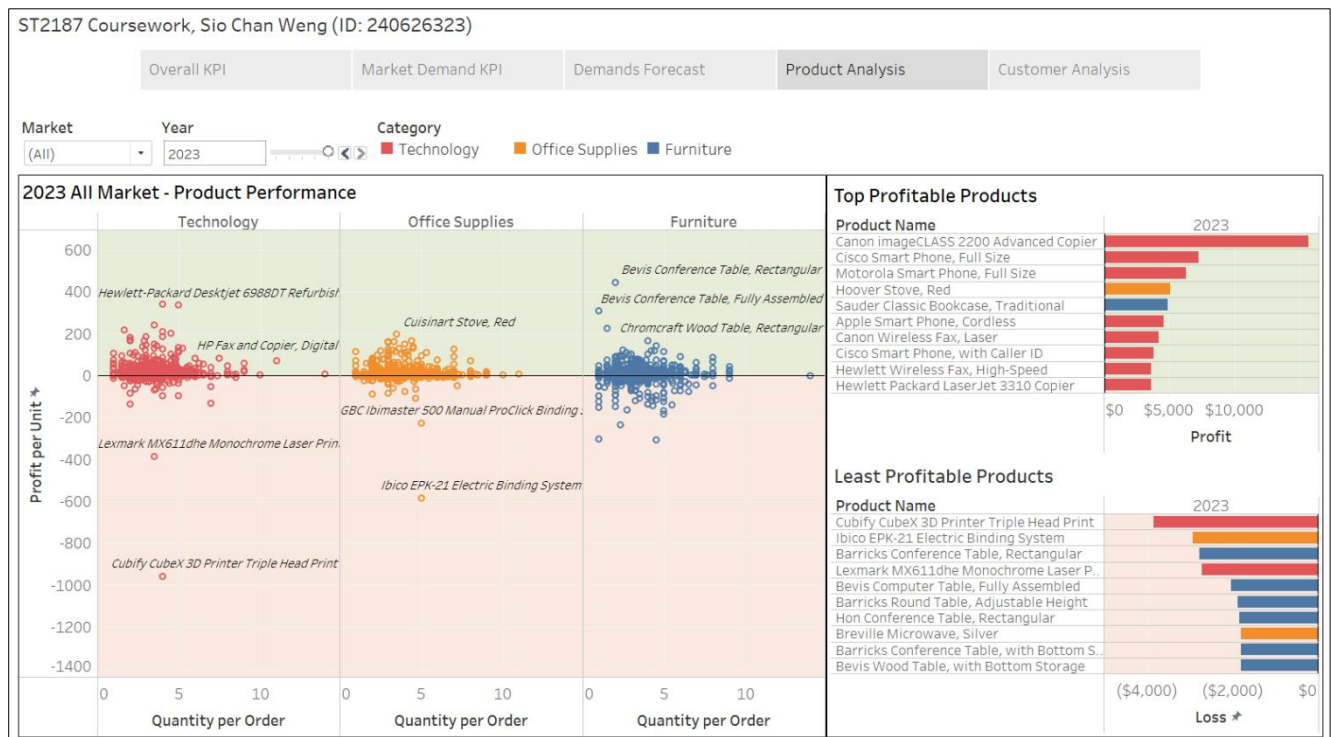


4.1. Insights: A seasonal forecast model has been computed using exponential smoothing to project demand for each product category for Q1–Q4 of 2024, based on data from the previous four quarters. The forecasts indicate that all three product categories will experience some growth in demand, and office supplies are expected to experience the highest level of growth, with an initial demand of $6,871 \pm 906$ units in Q1, and reaching up to 15,000 units in Q4.

The linear regression lines displayed on the right side of the dashboard illustrate how sales, shipping costs, and profits increase with each additional quantity ordered across all three product categories. Notably, technology products exhibit the steepest profit slope, with profits increasing by 19.6 per unit-increase in quantity, compared to slopes of 8 for furniture and 5 for office supplies. This indicates that, on average, technological products are the most profitable, even though they also have the steepest slope in shipping costs.

4.2. Recommendations: Based on the overall demand forecast for all markets combined, it is recommended to increase inventory levels considering the projected upward trend in demand throughout 2024. The forecasts and regression coefficients provide valuable insights for strategic planning and inventory management and could be used to determine the optimal number of units to reserve in each product category for each quarter of 2024. This dashboard also highlights which products to prioritize, while balancing the need to minimize costs with the goal of satisfying demand and maximizing profits.

5. Product Profitability Analysis

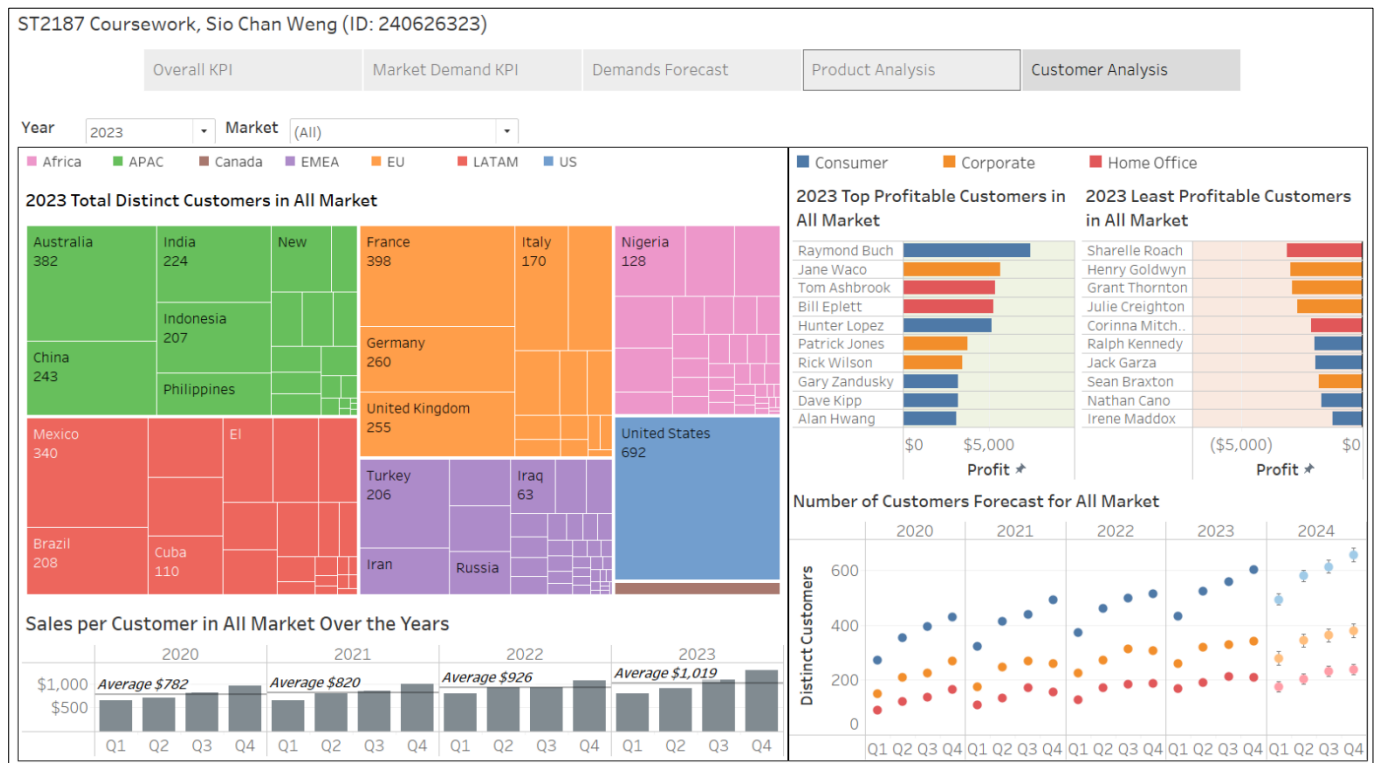


5.1. Insights: To maximize profit, it is also essential to prioritize investment in high-performing products and reevaluate less profitable ones. The product analysis dashboard offers an overview of product profitability by category in any selected year and market. The scatterplot on the left displays the average profit per unit and the average quantity per order for each product. High-performing products can be identified at the top of the graph. For instance, in 2023, the "Hewlett-Packard" printer in the technology category has the highest profit per unit and a decent quantity per order. On the other hand, the "Cubify CubeX" triple head 3D printer has the highest loss per unit, which suggests that investment in this product is not yielding satisfactory returns, and it may be better to discontinue such products in the future. Additionally, some products have nearly zero profit per unit despite a high quantity per order. This could indicate that these products are underpriced. Given their strong demand, increasing the pricing of such products could enhance profitability.

On the right side of the dashboard, a bar plot of the total profits/losses of the top 10 most profitable and least profitable products are shown. It could be seen that among the list of the most profitable products, majority of them are under the technology category, with the "Canon image CLASS 2200" copier generating significantly more profits than any other products. As for the least profitable products, majority of them are under the furniture category, but the "Cubify Cubex" triple head 3D printer under the technology category has still incurred the most losses.

5.2. Recommendations: It is recommended that product offerings and pricing should be reevaluated according to their performance to better align with the market demand. Specifically, underpriced products with high demand should have their prices adjusted to reflect their value better. Additionally, underperforming products should be thoroughly evaluated for potential improvements or, if necessary, discontinued to free up resources for more profitable items.

6. Customer Analysis



6.1. Insights: The customer analysis dashboard provides an overview of performance in customer management for different markets. On the left side of the dashboard, it could be seen that United States has the greatest number of customers in the world, followed by France and Australia. When comparing the same chart in 2022, it is shown that the number of customers in Australia have the largest growth (32% growth) compared to the growth of other key countries in each market. This substantial growth indicates that the marketing strategies implemented in Australia have been highly effective in attracting new customers. In the bottom left, it is shown that the average sales per customer have been increasing year by year. To better understand this trend, a study could be conducted to evaluate whether this increase is primarily due to price inflation or other factors, such as an increase in customer spending. If the increase is attributed to higher customer spending, this suggests new

opportunities for business growth. In this case, marketing strategies should be redesigned to capitalize on these opportunities.

The right side of the dashboard provides a forecast of customer growth for 2024, based on data from the previous four quarters. It is shown that the consumer segment is the largest customer segment of the superstore and is expected to experience the steepest growth in numbers for 2024. The bar chart for the top 10 most profitable customers reveals that most of these customers belong to the consumer segment. This suggests that the consumer segment is not only the largest but also quite profitable. Conversely, the bar chart for the 10 least profitable customers shows that the least profitable customer is in the home office segment, while the majority of these customers are distributed between the corporate and consumer segments. This suggests that there may be inefficiencies or cost issues associated with serving these customers.

6.2. Recommendations:

With forecasts for 2024 expecting continued customer growth, it is recommended to develop more targeted marketing strategies and invest in developing loyalty programs specifically for the consumer segment to sustain or build on this momentum. To understand cost issues or inefficiencies associated with the least profitable customers, managers are advised to conduct a detailed cost analysis to identify areas for cost reduction and service optimization. Also, given the growth of customers in Australia, the current product mix in Australia may need to be re-evaluated to ensure that it continues to meet the needs and preferences of the new customers acquired in the previous year. Additionally, the success in Australia suggests that similar marketing strategies may be applied to other key countries in the same market, such as China and India, to drive similar growth.