Online Retail Analysis

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**Executive Summary**

The question wanted to explore in this analysis was how holidays affect the performance of gifts retail. This report provides insights and analysis into non-store online retail.

The first recommendation made was to shift focus to nearby countries such as Germany, and France in order to increase sales and tap into a larger customer base. As the retail store specializes in gifts, it has the potential to enter any market. To do so, the retail must offer the appropriate payment methods for the country they wish to enter and ensure that content can be translated into the local language. Pricing technique such as market penetration can be used.

Another proposal would be to retain customers. There are two approaches the store can take: either revenue driven, or customer driven. Revenue driven approach can be achieved when only focusing on store’s best customers and using personalized offers and either premium pricing or price skimming technique to maximize the revenue. Another approach is customer driven which is acquiring new customers from segments such as “At Risk", "Can't Lose Them" and "Customers Needing Attention" to increase their loyalty and potentially become best customers. The store can use bundle pricing or competitive pricing to acquire customers.

Additionally, the store should focus on their top 500 products that are bringing in 80% of their revenue. While the majority of products may not be interesting to people, the product selection should be narrowed (lowering color selection, etc.) to save money on operations and warehousing. The retail should investigate why they have such a wide product selection that is not performing. The reason could be that customers are unable to find these products on the website.

Answering the question of how holidays affect the retail business, two distinct trends were uncovered: 11 to 18 days before major holidays (Christmas and Black Friday) are the busiest for the store, while smaller holidays (in terms of sales made) such as Valentine's Day, Easter, and St. Patrick's Day tend to generate the most revenue for the retail business one to two weeks prior. During this time, it is essential to take all necessary steps to meet customer needs, such as stocking up inventory and launching campaigns.

**Introduction**

This transnational dataset contains all the transactions that occurred between December 1, 2010, and December 9, 2011, for a UK-based, non-store online retail company that specializes in unique, all-occasion gifts. The company's clientele is largely comprised of wholesalers. Its limitations are low number of columns which limits us from making many data-driven decisions, a lot of missing values in Description and CustomerID, last year’s findings could not be compared with this year’s, and the last month (December) was incomplete, so the data was up to the 9th of December. The aim of this analysis was to examine the effect on holidays for this retail performance and examine the sales of this retail store from multiple perspectives, such as the monthly, weekly, and hourly distribution of sales. Furthermore, the distribution of customers and their countries was also investigated. Finally, the best-performing products and were analyzed. It is worth noting that, due to the dataset containing invoice dates (i.e., when the invoice was sent out), some holiday dates such as December 24th to January 3rd were not included in the dataset. It also explains why there are no logs from any Saturday, we can assume that the person responsible of preparing invoices does not work on Saturdays and work only from 7:00 a.m. to 8:00 p.m. This limits our analysis from the point of view of distribution per weekday and per hour, as we are unaware of the exact time of the order.

**Analysis**

First thing that was interesting to look at were the distribution of sales by month, by week and by day. This is a great overview to analyze the company's position in the industry, a comparison against its competitors is essential. This helps an eCommerce company determine the ideal time to launch ads, discounts, and promotions. Tracking sales trends allows the company to optimize its business operations. Additionally, it enables the company to devise effective short and long-term marketing strategies. Interesting insights were uncovered from the monthly sales trend, which showed that the theory of retail sales seasons is applicable in this situation. Referring to the graph, the holiday season from October and November were the company's most successful months. Although December 2011 is incomplete, up to the 9th, there was still a substantial number of sales made, indicating that the revenue is likely to exceed last year's. Comparing the first 9 days of December 2011 to the same period in 2010, the revenue was 9% larger. When comparing it to the whole of December 2010, 58% of the revenue had already been achieved. October and November had the highest revenue due to the many holidays taking place in that time period, such as Christmas and Black Friday. In December 2010, sales were high, as is typical for the month, with most purchases being made more than two weeks prior to Christmas. This is a prime time for retailers, as shoppers rush to get their gifts in time for the holiday season. Examining the two-week period before Black Friday (November 25th), an increase in sales was observed. Surprisingly, Black Friday itself was not a big day for sales, but this could be attributed to the fact that many of the retail store's clients are wholesalers, who may have bought products before the holiday to sell them on Black Friday. The same trend can be seen during the Halloween period as well; 31st of October was good day in terms of sales but the record revenues came from two weeks before. After the holidays come the “post-holiday” season from January to March. During that time period people tend to shop less, but there are still some holidays such as Valentine’s Day and St. Patrick’s Day which overall did not have such substantial effect on revenue as the last period did. Next season is the spring season where people start to buy more either for school graduations or Easter. April was the lowest full month in terms of revenue as the store was closed for four days due to Easter Holidays. Most purchases were done about ten days before Easter. Typically, summer months bring about a decrease in sales for most retail stores. However, this store experienced a steady, but still relatively high level of sales until September, when an increase 30% compared to the summer months was seen. This may be due to the fact that September is the most common month for birthdays in the UK. May, August, and September had the highest revenue-to-order ratio of 20, indicating an average order value of £20. This suggests that customers were particularly eager to purchase during these months, likely due to seasonal demand. This analysis could be immensely beneficial to the store, providing insight into optimal timing for campaigns and product releases. By leveraging this data, the store can maximize the impact of their marketing efforts and ensure that their products are released at the most opportune times.

A trend was seen when analyzing the effect on store’s performance before holidays such as Christmas, Black Friday, Valentine’s Day, St. Patrick’s Day, Easter. Before Christmas the busiest days were 14-18 days. Before Black Friday the best performing days were from 11-18 days. Valentine’s Day and St. Patrick’s Day had the same range of 7-14 days. Easter had the closest range to holiday with 3-10 days. Christmas and Black Friday, however, are bringing in more sales than the other three which means that larger holidays such as Black Friday and Christmas the retail has to be ready already 11-18 days before the respective holiday. Smaller holidays (in terms of sales made) such as Valentine’s Day, St. Patrick’s Day and Easter the retail is busy from two weeks up to a week prior. This could benefit the store largely when thinking about the time to restock the storage.

Second aspect that was wanted to analyze were countries and clients. Total of 38 countries were represented in this graph with United Kingdom being the largest contributor in terms of revenue and number of orders. 85% of total revenue and 92% of total orders has come from United Kingdom with Netherlands being second revenue wise and Germany being the second highest country in terms of number of orders. Surprisingly, the Netherlands ranked second in terms of revenue, but fifth in terms of the number of orders placed. This suggests that clients from the Netherlands placed orders in large quantities, indicating that the Netherlands may have wholesalers as clients. Upon further investigation, only one large client from the Netherlands was identified, who was also the biggest client overall and contributed 98% of the Netherlands' revenue and nearly 3% of the total revenue. Unfortunately, the dataset does not provide us with the names or regions from which these orders were placed. Other top 10 clients were also wholesalers mostly from United Kingdom. There are 4362 customers in total, with 90% of them coming from the United Kingdom, 2% from Germany, and 2% from France. After conducting a RFM analysis, it was revealed that customers labeled as "Champions" are the most valuable clients for the company. On average, they are the most frequent, most recent, and highest-spending customers. Champions also make up the largest segment of customers, accounting for 22% of the total. The store could focus on customer segments named “At Risk”, “Customers Needing Attention” and “Can’t Lose Them” as they are next biggest segments in terms of average monetary. This analysis helps the store understand their customer segments and whom to focus on. For instance, the store has 9% of customers at risk of being lost, despite the substantial amount of revenue they bring in.

The third aspect that was analyzed were the best performing unique all-occasion gifts. Overall, there are 3890 products in total. After analysis, it was discovered that these gifts were surprisingly affordable, with an average price of just £3.28. The store offers customers the perfect opportunity to find a special gift for any occasion without breaking the bank. After conducting a Pareto chart, it became apparent that the typical 80/20 principle did not apply in this example, as 80% of revenue was generated by only 12.6% of the top products, rather than 20% of products. This suggests that the other products may not be as appealing to customers, and that narrowing the product selection (removing color selection) could save money on warehousing and operations for products that are barely selling. Pareto analysis can be beneficial for retail businesses, as it can help to boost revenue by identifying which products to focus on more. Additionally, the retail can build a more effective website to potentially increase sales of the better-selling products. The reason why a wide range of products are not selling could be due to the website itself – customers may not be able to find the products on the website.

The top-performing product by revenue was a cake stand, which generated approximately 2% of total revenue, while the top 10 products produced 9% of total revenue. Other products consisted of night lights, bird ornaments, and chili lights. The United Kingdom had three top-selling products: “Regency Cakestand 3 Tier”, “White Hanging Heart T-Light Holder”, and “Party Bunting”, which all accounted for a total of 3.8% of sales in the UK. France’s top three products were “Rabbit Night Light”, “Regency Cakestand 3 Tier”, and “Red Toadstool LED Night Light” which all accounted for a total of 6.6% of sales in France. Germany’s three highest selling products were “Regency Cakestand 3 Tier”, “Round Snack Boxes Set of 4 Woodland”, and “Round Snack Boxes Set of 4 Fruits” which all accounted for a total of 6.9% of sales in Germany.

**Conclusion**

From the analysis, it is evident that action must be taken to focus on other countries. It was revealed that countries near the United Kingdom tend to generate higher revenue than those from farther away. I believe that the store should prioritize international sales, as these unique, all-occasion gifts can be sold to anyone, regardless of their location. By doing so, the store can tap into a larger customer base and increase its profits. To maximize revenue, the store should implement campaigns that incentivize spending, such as waiving transportation fees for purchases over some amount or offering a free gift with every fifth purchase. Additionally, personalized emails targeting segments such as "At Risk," "Can't Lose Them," and "Customers Needing Attention" can help increase revenue and expand the business's international reach. Because the retail store specializes in gifts, it has the potential to enter any market. To start, Germany and France should be the primary focus, as they are the top two and three countries represented in these customer segments. Additionally, these countries offer a wealth of opportunity for the retail store to expand its reach and capitalize on the growing demand for its products. Furthermore, knowing their top products the store can benefit from this information when entering to their market. When examining revenue, the Netherlands and Ireland should be taken into consideration; however, there are only nine and three customers respectively in these countries. This high ranking in the country table is due to a single customer in each country who placed a large order. To ensure success, the retail must offer the right payment methods for the country they want to enter, as research shows that 50% of customers are likely to abandon their shopping cart if they don’t see a payment method, they’re familiar with. Furthermore, 55% of consumers prefer to buy exclusively in their own language, so it’s essential to localize the business and product offering to the new audience. In fact, localization is the third leading method used by businesses to market their products in international markets. At the very least, the website and online store content should be translated (and checked by a native speaker for fluency) and customer service should be set up to deal with new queries in a foreign language or from different time zones. This will ensure that the business is well-equipped to enter new markets and maximize its potential. One effective technique for entering a new market is penetration pricing, which involves initially lowering prices to acquire a considerable customer base, and then gradually increasing them.

For keeping the customers, the store has many ways in order to do so. If the store is revenue focused, then it would be best to focus on only the Champions as they bring in the majority of revenue. In this case the store’s revenue would increase as they would only focus on their best clients in hopes of getting more sales from them. Some examples would be to do personalized offers or use price skimming or premium pricing strategy which could potentially make the retail brand more attractive. When the store is focused on the number of customers then they can focus on various segments such as "At Risk," "Can't Lose Them," and "Customers Needing Attention" to potentially increase the number of best customers. In this case they could use bundle pricing which gives them an option to buy two or more products with lower price. That could increase the loyalty of the customers and it would increase the quantities sold. Another option is to use competitive pricing to target price-sensitive customers and keep prices lower than your competitors. This can be used to acquire new customers from your competitors.

The retail store could focus on their top products, which produce 80% of their revenue. By focusing on these products, the store can increase their revenues by showcasing them more prominently on their website and by narrowing down their product selection, for example, by removing color selections to save money on warehousing and other operations. Additionally, they should focus on the larger range of products (87.4%) that are producing only 20% of their revenue and investigate the potential reasons why they are not performing as well. The issue could be the website itself; customers may not be able to find these products on the website.

As for analyzing the effect that holidays have on the retail’s performance, two distinct trends were identified: the store experiences its highest levels of traffic 11 to 18 days before major holidays such as Christmas and Black Friday, while smaller holidays (in terms of sales made) like Valentine's Day, Easter, and St. Patrick's Day tend to generate the most revenue for the retail business in the one to two weeks leading up to them. To ensure that they are prepared for the influx of customers, they must stock up on inventory and launch campaigns to maximize their reach. Additionally, analyzing the distribution of sales by weeks and days can help the store to be better prepared. By understanding the patterns of customer behavior, the store can optimize its operations and ensure that it is always ready to meet customer needs.

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