

# Analysis of Olist a Brazilian E-Commerce Store

## Objectives

- **Review Analysis:** Conduct a thorough analysis of product categories through the examination of product reviews.
- **Order Fulfilment and Delivery:** Analyse order processing times, delivery performance, and customer satisfaction to optimise fulfilment processes.

## Introduction

Olist, a Brazilian company established in 2015, serves as a link connecting small enterprises with prominent online marketplaces. The company's platform facilitates the seamless sale of products for small and medium-sized merchants across various e-commerce platforms such as Mercado, Livre, and Amazon. Olist streamlines the selling process by providing services like catalogue management, order processing, and customer support. This empowers businesses to expand their reach, access a wider customer base, and flourish in the online marketplace.

The dataset, generously provided by Olist, represents the largest department store in Brazilian marketplaces. Covering the period from 2016 to 2018, the dataset includes information on over 100,000 orders placed across multiple marketplaces in Brazil. Its features enable a comprehensive view of orders from various dimensions, including order status, pricing, payment and freight performance, customer location, product attributes, and customer reviews.

## Delivery Analysis

As of 2016, Olist has fulfilled a cumulative of 110,000 orders, with bed bath tables constituting the majority at over 11,000 successfully delivered orders. The top 5 product categories, based on the number of successful deliveries, collectively account for approximately 50% of the total orders shipped.

The distribution of delivery periods (Figure 1) follows a right-skewed normal distribution, with a peak at 7 days, signifying 7 days being the most frequently occurring delivery period.

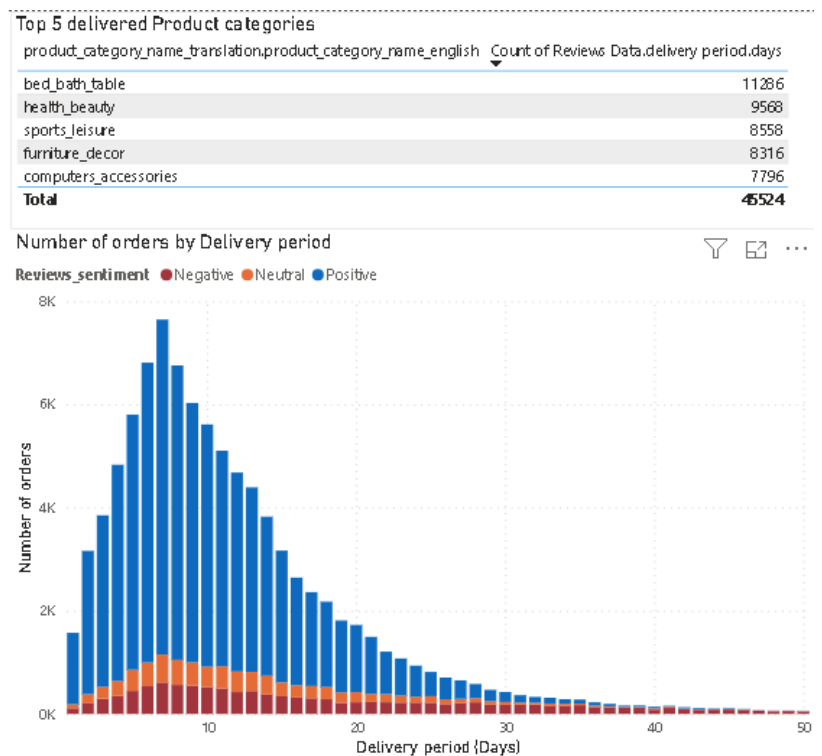


Figure 1

Delivery period by %GT Orders

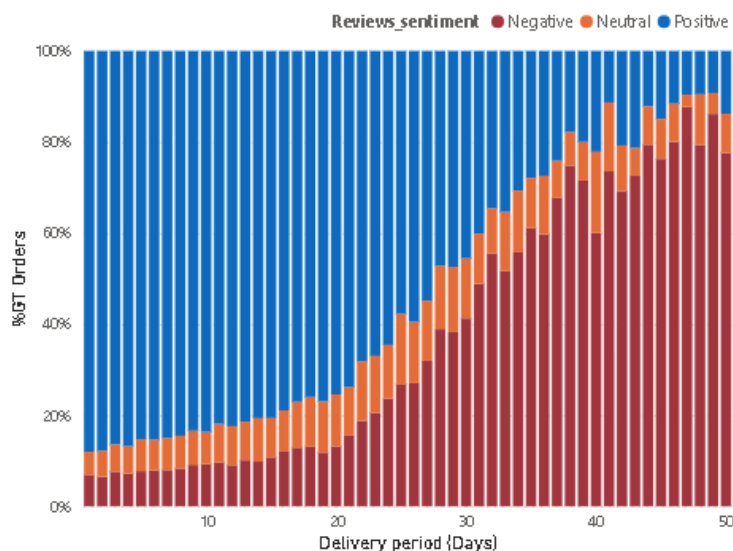


Figure 2

An analysis of delivery against review sentiment reveals a relationship between the two. Figure-2, a stacked bar chart, illustrates the percentage of the grand total by delivery period in days. The plot suggests a correlation: the longer the delivery period, the higher the proportion of negative reviews. To enhance customer satisfaction, prioritising efforts to expedite and streamline the delivery process could be an effective strategy.

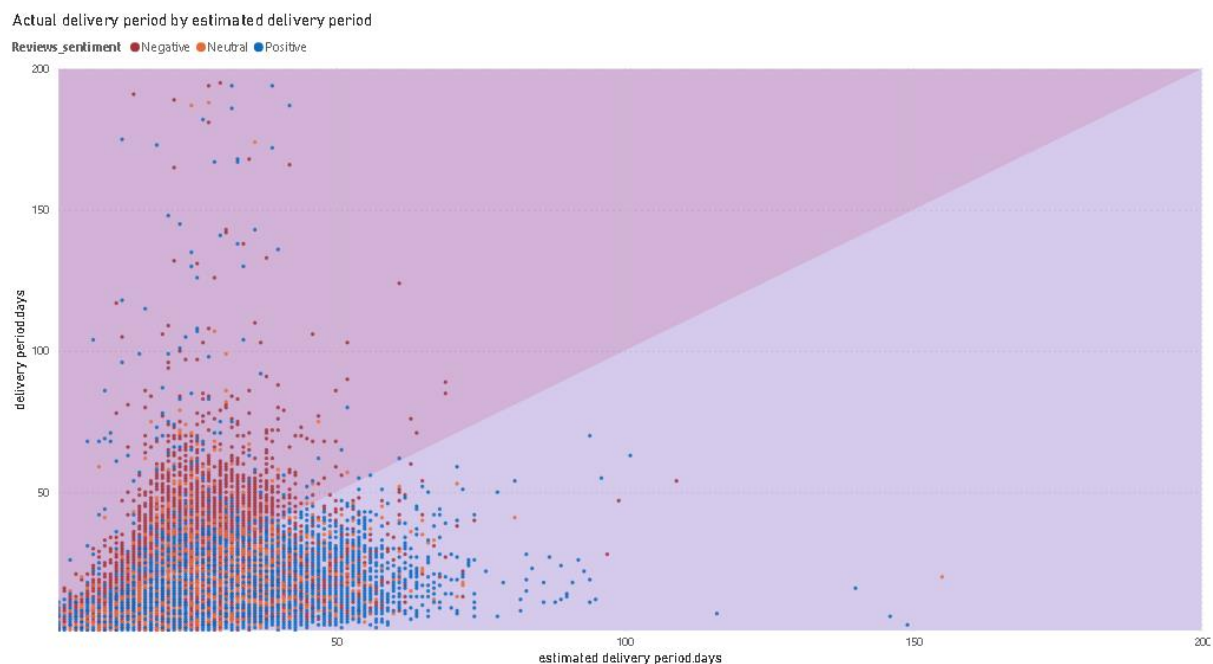
The analysis of delivery periods reveals that the median actual delivery time is approximately 7 days, spanning from 3 to 14 days, while the median estimated delivery time is around 5 days, ranging from 2 to 10 days. Notably, most shipments align closely with their estimated delivery times, with actual delivery periods typically falling within a one-day margin of the initial estimates. This indicates a

generally reliable and consistent performance in meeting delivery expectations, fostering customer satisfaction by minimising discrepancies between estimated and actual delivery times.

Upon further analysis of delivery data, two notable areas of interest have been identified. Figure 3 illustrates a clear distinction between two groups of orders: one group is delivered well before the estimated delivery time, while the other takes considerably longer than the estimated duration. This could be due to several factors, such as unexpected delays, weather conditions, or errors in the shipping process.

Shipments with actual delivery periods that are much longer than the estimated delivery period are more likely to have negative reviews. Conversely, shipments with actual delivery periods that are much shorter than the estimated delivery period are more likely to have positive reviews. The plot also highlights a notable increase in negative reviews as the actual delivery period extends beyond 25 days.

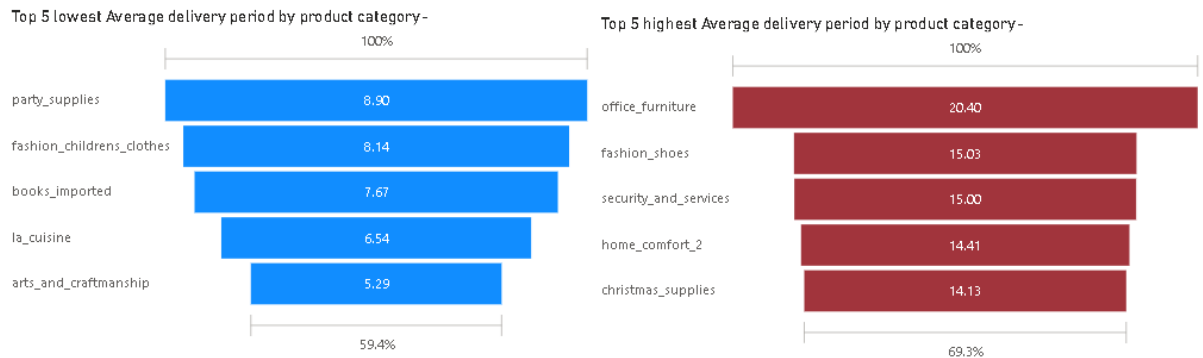
The significant number of orders experiencing delays beyond the estimated delivery time prompts the need for a more in-depth analysis to pinpoint the root causes of this issue. Possible factors contributing to the delays could include variations in product types, destinations, or other influencing factors, requiring a thorough investigation to address and improve overall delivery performance.



**Figure 3**

An analysis of product categories aimed to identify the highest and lowest delivery averages (Figure 4). Among the categories, Arts and Craftsmanship exhibited the fastest average delivery period at 5 days, while Office Furniture had the lengthiest average delivery time of 20 days. Notably, Fashion Shoes followed with a 15-day average, a significant 5 days less than Office Furniture. This variance may be attributed to the size discrepancy between fashion shoes and office furniture, impacting delivery times.

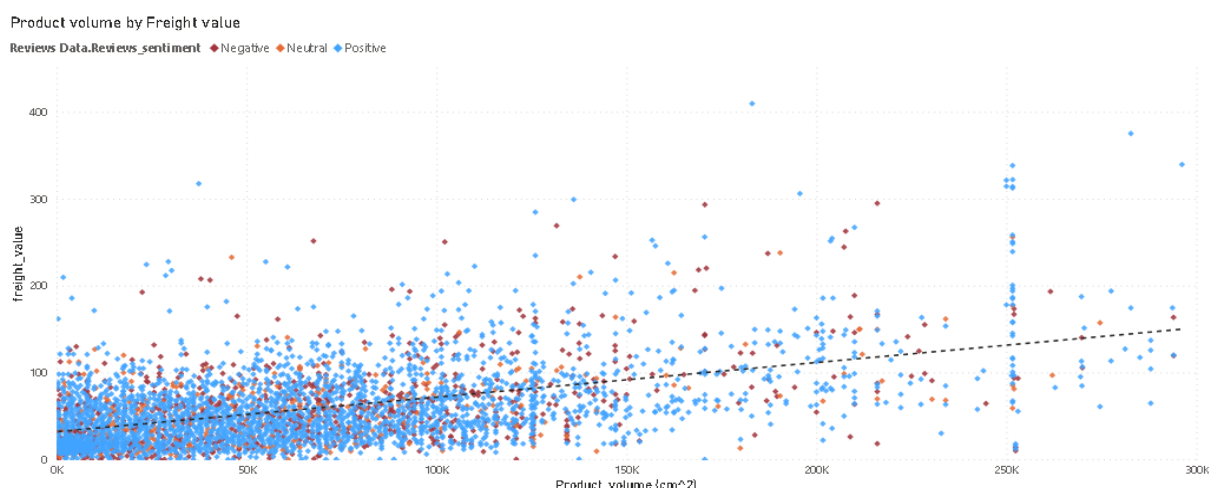
Security and Services, with only 2 orders, showed an average delivery time of 15 days, but this figure is subject to scrutiny due to the limited data points. To uncover the root causes of prolonged delivery periods for the top 5 categories with the highest averages, further analysis is imperative. This examination should delve into potential factors such as product characteristics, destinations, or any other variables influencing delivery times.



**Figure 4**

The analysis of the relationship between freight value and product volume, as depicted in Figure 5, reveals a positive correlation between the two variables. This indicates that as the product volume increases, the freight value also increases. The observed correlation is likely attributed to the fact that larger and heavier products demand more resources for transportation.

The increased freight value could stem from the logistical challenges associated with handling and transporting larger or heavier items. Loading and unloading such products may require more effort and specialised equipment, contributing to the overall cost of freight.



**Figure 5**