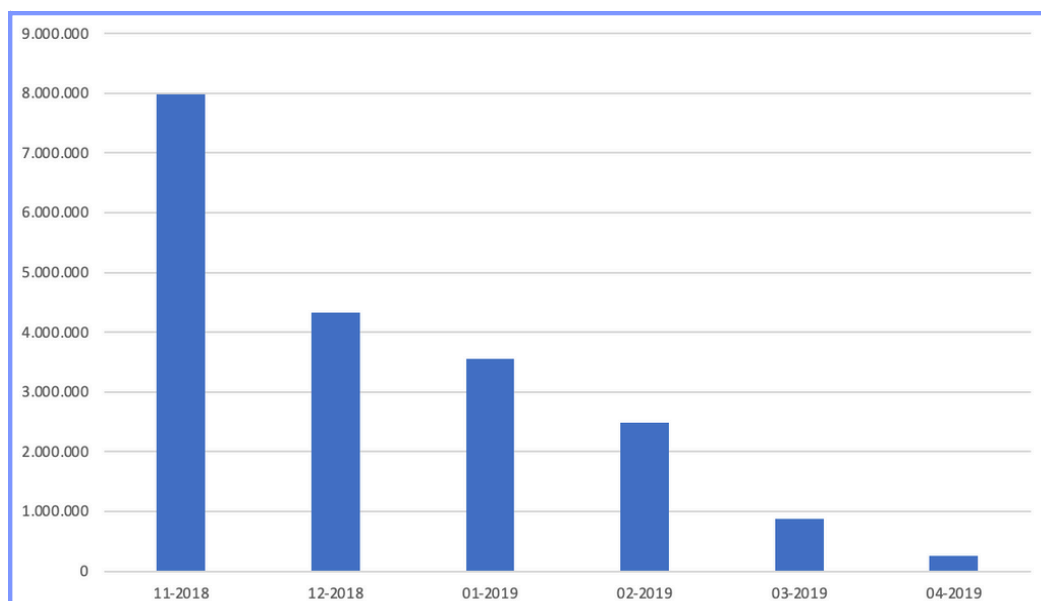# BUSINESS REPORT
CUSTOMERS SEGMENTATION

The purpose of this report is to analyze the transaction data of an online sales company and to segment customers using clustering techniques, in order to provide useful insights for the marketing department. The segmentation will make it possible to identify groups of customers with similar purchasing behaviors, with the goal of developing targeted marketing strategies.

Dataset Overview

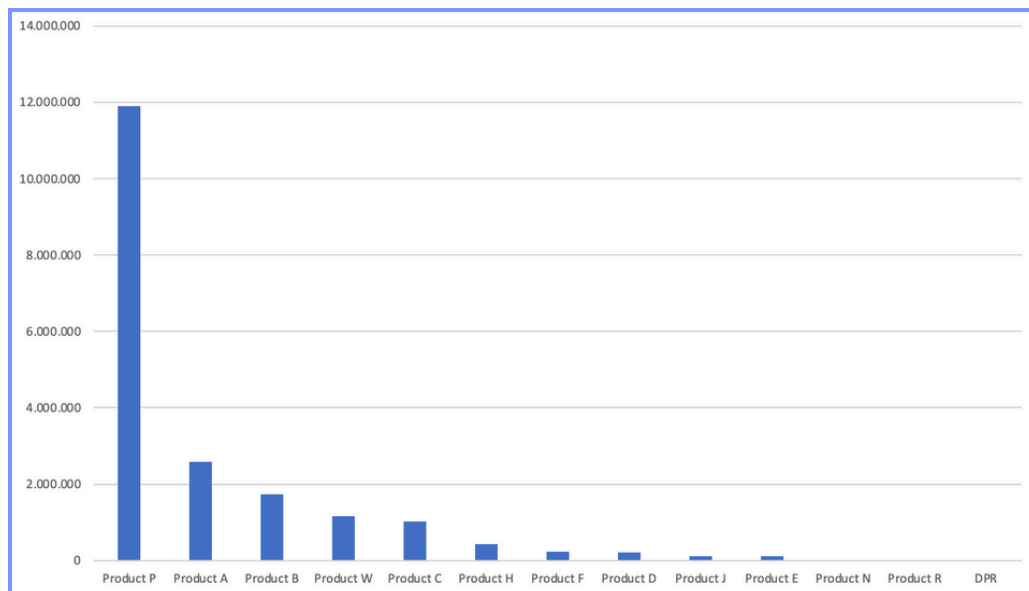Data are available for 3,000 transactions performed by 2,578 distinct customers between November 2018 and April 2019.

Below there is an overview of the initial data, aimed at understanding some characteristics of the observations.

Figure 1: **Total Sales per Month**

The chart indicates a declining trend in sales over the observed six-month period, highlighting the need for targeted marketing actions aimed at consumers.

From Figure 2, it is evident that Product P contributed significantly to sales compared to the other products.
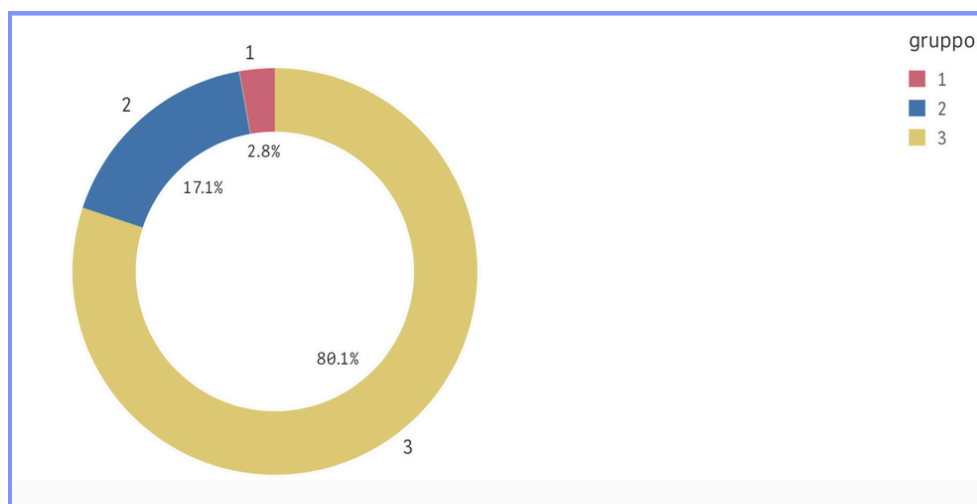
Discounts applied to the products follow the sales trend: the higher the sales, the greater the discount.

Regarding returns, no particularly significant or recurring patterns emerged, as only six items across different product categories were returned.

Clustering

After analyzing the dataset, groups were identified to segment the customer base using specific clustering algorithms.

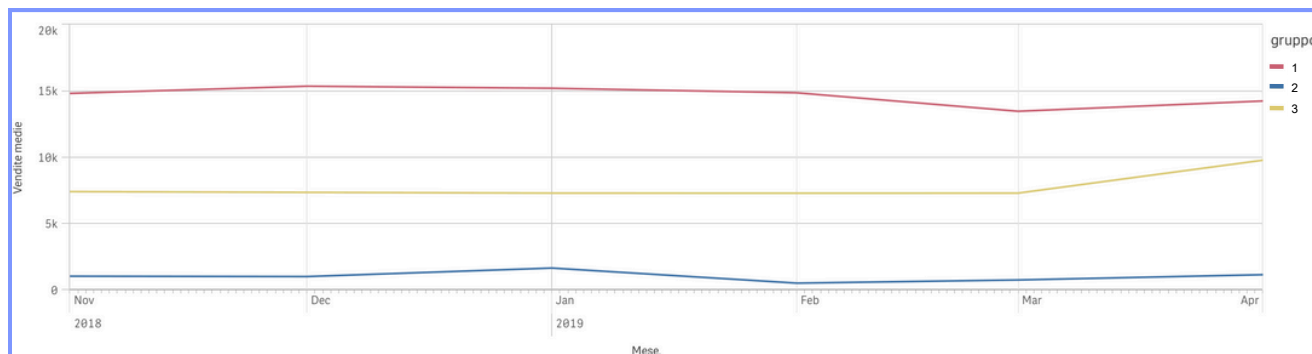**Figure 3: Cluster Composition**

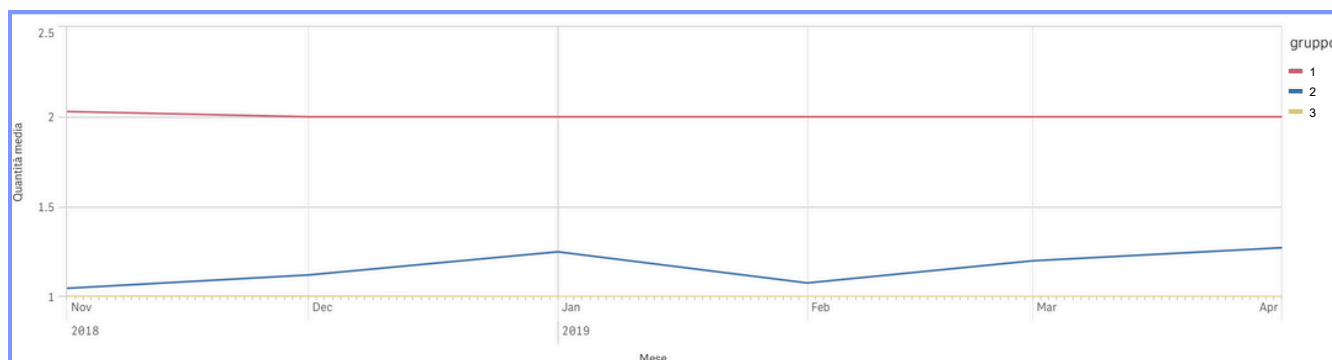Three customer segments have been identified:

- **Group 1:** 84 individuals
- **Group 2:** 510 individuals
- **Group 3:** 2388 individual

Outside of these groups, there are six individuals who, despite their small number (0.2% of transactions), were highlighted as they represent the only customers who made a return. Given the limited size of this group, they do not constitute a true cluster.

Figure 4.1: *Temporal Trend of Average Sales per Cluster*
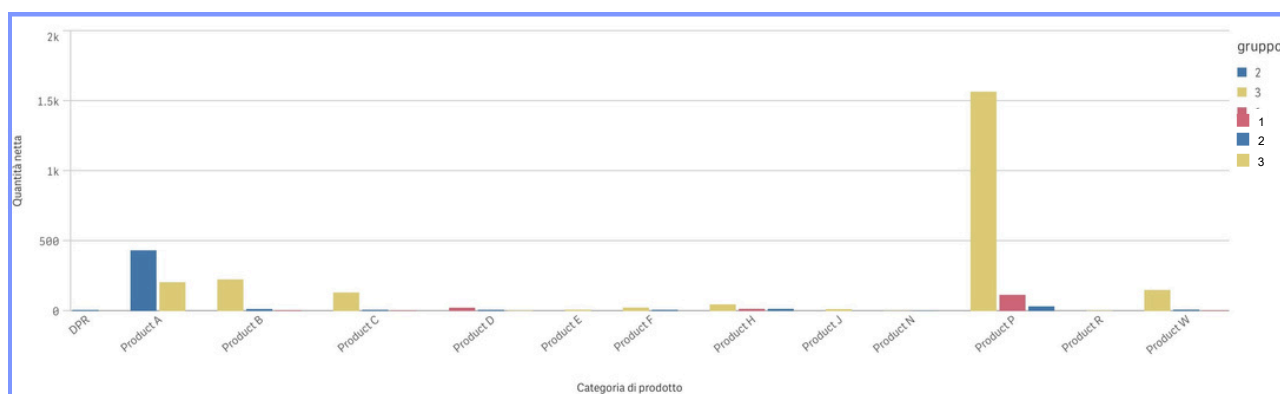

Figure 4.2: *Temporal Trend of Average Quantities Purchased per Cluster*

Analysis of Figures 4.1 and 4.2 shows that users in **Group 1** spend, on average, more than the other groups and purchase at least two products. **Group 2** users tend to spend less, buying one or at most two products. Finally, members of **Group 3** have an average expenditure between the other two groups and purchase only one product.

Figure 5: *Products Purchased per Cluster*

Analysis of Figure 5 shows that Product P is the most purchased item by customers in **Groups 1** and **3**, indicating a strong preference for this product type. Conversely, customers in **Group 2** tend to prefer Product A.
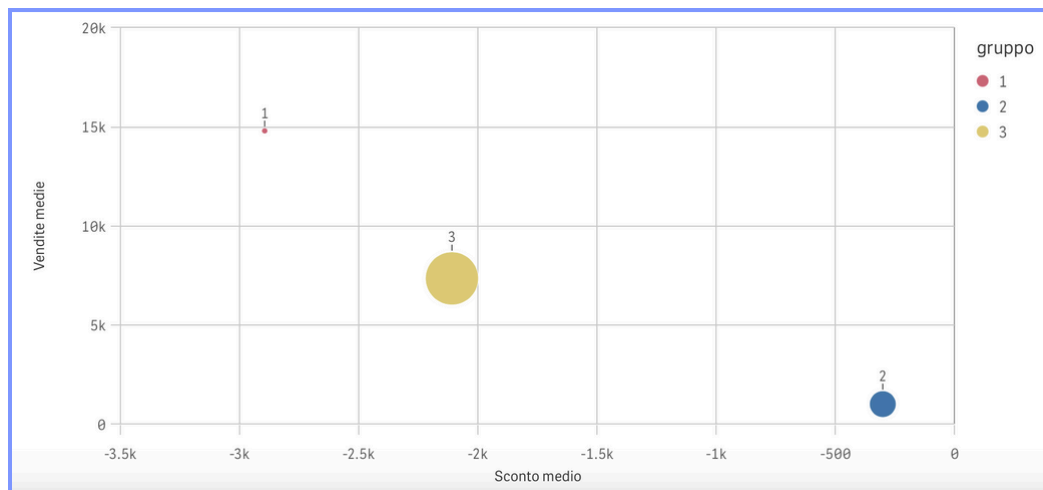
Figure 6 shows that customers in **Group 1** spend more than the others but receive, on average, a lower discount. Users in **Group 2** benefit from a higher average discount, proportional to their lower spending. Finally, customers in **Group 3** occupy an intermediate position, with moderate spending and significant discounts in absolute terms.

Highlights

Group 1: High-Value Customers

They represent a small percentage of the total customer base but account for the highest spending and purchase the most products per transaction. Their behavior is consistent over time, and they receive lower discounts relative to their spending compared to other groups, suggesting that price is not the primary driver of their purchases.

Proposed strategy: Leverage their high spending propensity by offering exclusive benefits, such as early access to new products or additional services, instead of direct discounts.

Group 2: Price-Sensitive Customers

They purchase one or at most two products per transaction, with lower spending compared to the other groups. They show a preference for certain product types and benefit from higher discounts relative to their spending than Group 1.

Proposed strategy: Encourage purchases through progressive discounts— the more products they buy, the greater the discount.

Group 3: Promotion-Sensitive Customers

They make up the majority of the customer base and purchase only one product per transaction, with spending at an intermediate level compared to the other groups. However, they receive significant absolute discounts, suggesting that their purchase decisions are often driven by promotions.

Proposed strategy: Implement targeted repurchase techniques, such as offering a gift with the next order.