XYZ Wholesale Executive Summary

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To better serve their customers across Portugal, it is advised that XYZ Wholesaler (XYZ) create targeted business strategies for their two key market channels (Retail and Hotel/Restaurant/Cafe aka Horeca) and reduce or eliminate Delicatessen offerings to streamline their product offerings and optimize inventory levels to best meet their customer's demands.

Procedure

In our study, we applied a hierarchical clustering algorithm to XYZ's customers to identify if and how their spending patterns resulted in groups with similar attributes but still having groups distinct from one another. Attributes that were considered were annual spending across six product categories within the context of two channels (Horeca and retail) and three regions (Lisbon, Oporto, and others). We investigated the meaningfulness of the relationship between attributes when grouped in three, four and five clusters. Three clusters created larger and less homogeneous clusters that were difficult to characterize. Increasing our cluster count from four to five did not result in a fifth and appreciably unique cluster. Consequently, we settled on characterizing 4 clusters as the basis to form our recommendations.
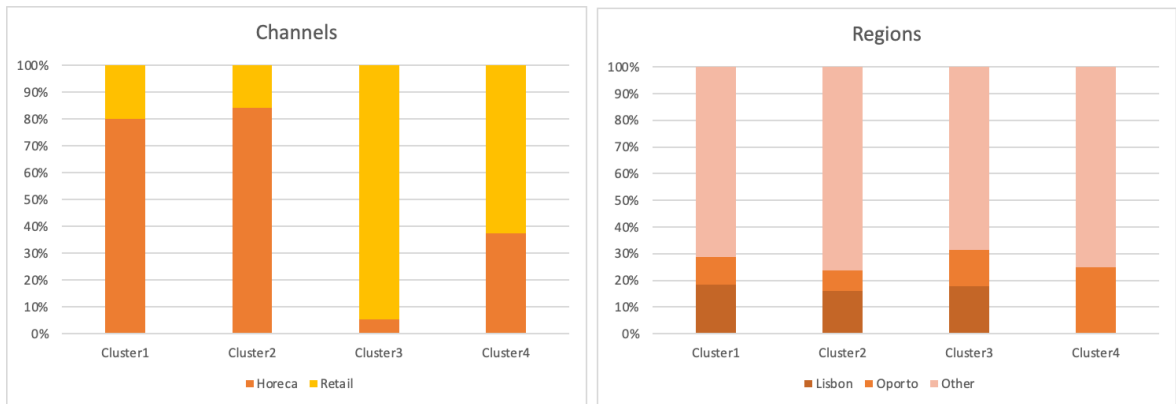
Results

After a thorough analysis, four meaningful clusters were identified.

Cluster	Fresh	Milk	Grocery	Frozen	Deterg./Paper	Delicatessen
1	0.073	0.044	0.047	0.032	0.031	0.022
2	0.243	0.074	0.063	0.110	0.025	0.048
3	0.044	0.162	0.213	0.023	0.227	0.031
4	0.345	0.523	0.484	0.261	0.479	0.197

The above table presents the normalized average spending patterns for each category within each cluster where darker coloring indicates higher values and therefore higher spending. Analyzing the channel and

regional breakdown within each cluster reveals significant findings, as seen in the two charts below.

Cluster 1 and Cluster 2 contain a high number of customers and a strong presence of the Horeca channel resulting in higher overall spending. On the other hand, Cluster 3 and Cluster 4 contain less customers and are predominantly associated with the retail channel and have a higher average spend. In terms of regional distribution, clients from various regions contribute to all clusters. Cluster 4 stands out as containing significantly less customers than the other three Clusters and also no Lisbon customers, suggesting this group has unique spending patterns. The following table provides the summary of each cluster but it can be seen that there is some overlap between the four clusters leading to some insights about the two Channels, Horeca and Retail.

hcluster	channel	region	key products	spending
1	Horeca	other	Fresh	low
2	Horeca	other	Fresh, Frozen	low-medium
3	retail	other	Milk, Grocery, detergents paper	medium
4	retail	other/Oporto	Milk, Grocery, detergents paper	high

- **Retail channel (all regions):** Generally shows a higher focus on the milk, grocery, and detergent paper categories with a median to high average spend. Notably, the Oporto region appears to exhibit distinct spending patterns specific to that region.
- **Horeca channel (all regions):** Generally shows a higher focus on the fresh and frozen categories with a low to medium average spend, but total Horeca spending is greater than that of Retail.

Recommendations

Based on our analysis, we have constructed three recommendation aid XYZ in making strategic business decisions around meeting their customers' demands:

1. <u>Retail Strategy</u>: Optimizing this high-purchase capacity channel can lead to continued growth for XYZ. The Retail business channel accounts for approximately 45% of all sales for XYZ, but these customers have a significantly higher average spend (1.7X) compared to Horeca customers. By prioritizing internal inventory levels of products in Grocery, Milk, and Detergents, XYZ can negotiate preferred pricing with their own suppliers and entice their clients by providing both pricing (increase bulk purchasing) and bundling promotions (increase customer perceived value) on goods that are popular with Retail customers.

2. <u>Horeca Strategy:</u> Two of the four clusters can be classified as primarily Horeca customers servicing greater Portugal with a significant portion of their spending in the Fresh product category. Operationally, it is recommended to focus resources on product quality control to assure product consistency and timely delivery of high quality fresh products to customers as a means of minimizing spoilage and losses. To increase brand awareness and sales with the Horeca channel, it is recommended for XYZ to conduct b2b promotion and tailored advertising activities aimed to communicate the advantages of buying fresh products from XYZ Wholesale over local and global competitors.

3. <u>Rethinking Delicatessens:</u> Delicatessen offerings provide limited value-add opportunities for XYZ, thus it is recommended to reduce or eliminate Delicatessen offerings to streamline inventory . While analyzing various clustering iterations, it was evident that the Delicatessen product category made a recognizable profit contribution but was consistently the lowest spending category over all regions and channels. If XYZ is unable to fully eliminate Delicatessen offering, we strongly recommend lowering sales efforts by decreasing advertising and promotion activities which will allow for increased efforts elsewhere, such as higher earning product categories like Fresh or Grocery.