

RFM Analysis Report: Customer Segmentation and Behavioral Insights

Executive Summary

This report presents the findings from an RFM (Recency, Frequency, Monetary) analysis conducted on Olist's customer base. The analysis segments customers based on their purchasing behavior to identify distinct groups with varying value and potential. Key insights reveal the significant challenge of one-time buyers, the presence of high-value single transactions, and specific geographic and product preferences within different customer segments. Operational strengths in delivery performance are also highlighted.

Customer Segments Overview

Based on the RFM model, customers were segmented into various groups, primarily distinguished by their Frequency (single vs. repeat buyers).

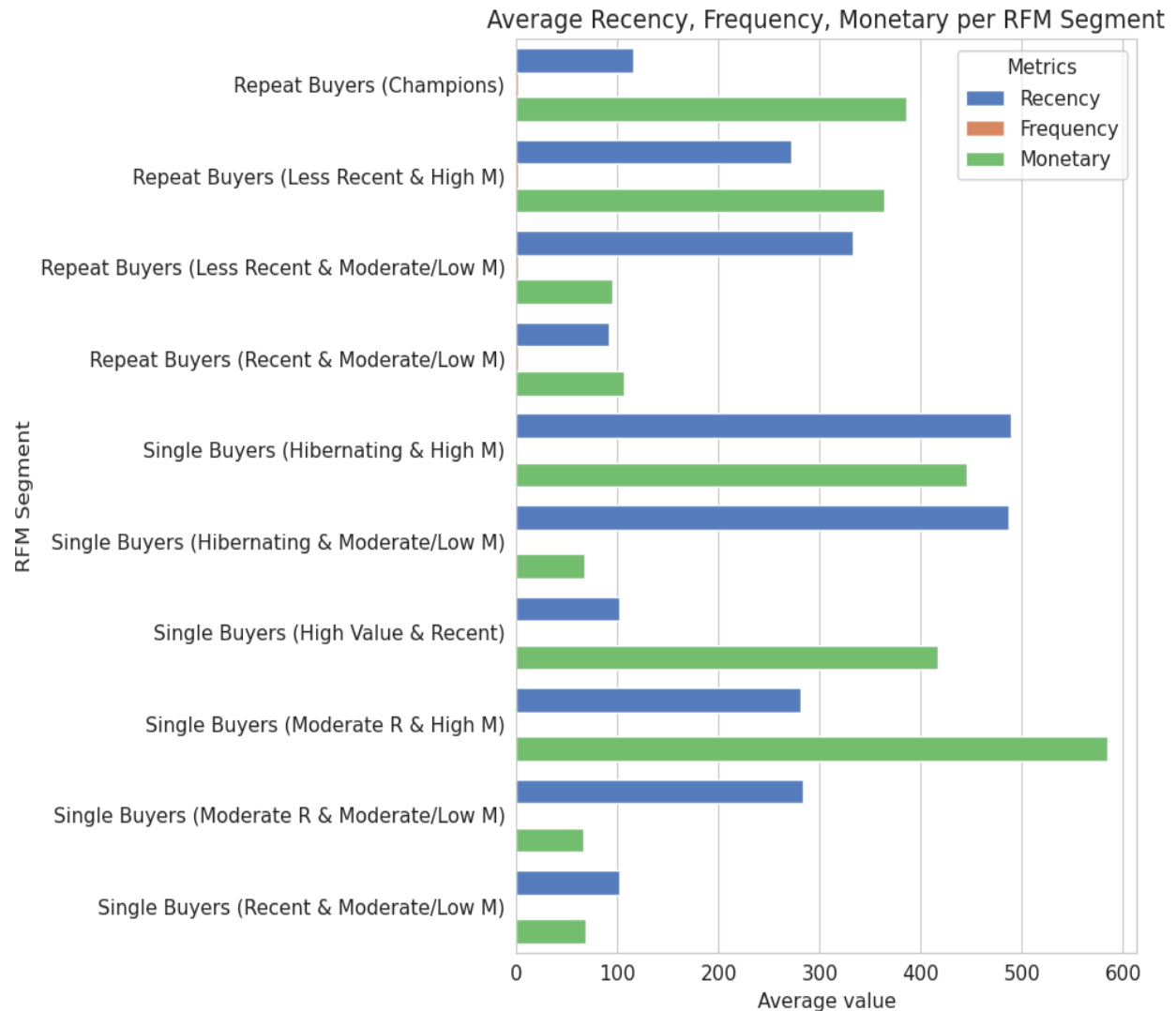
RFM Segment Distribution:

- **Repeat Buyers (Champions):**
- **Repeat Buyers (Less Recent & High M):**
- **Repeat Buyers (Less Recent & Moderate/Low M):**
- **Repeat Buyers (Recent & Moderate/Low M):**
- **Single Buyers (Hibernating & High M):**
- **Single Buyers (Hibernating & Moderate/Low M):**
- **Single Buyers (High Value & Recent):**
- **Single Buyers (Moderate R & High M):**
- **Single Buyers (Moderate R & Moderate/Low M):**
- **Single Buyers (Recent & Moderate/Low M):**

Key RFM Metrics by Segment

The average Recency, Frequency, and Monetary values for each segment illustrate their distinct characteristics.

Average Recency, Frequency, Monetary per RFM Segment:

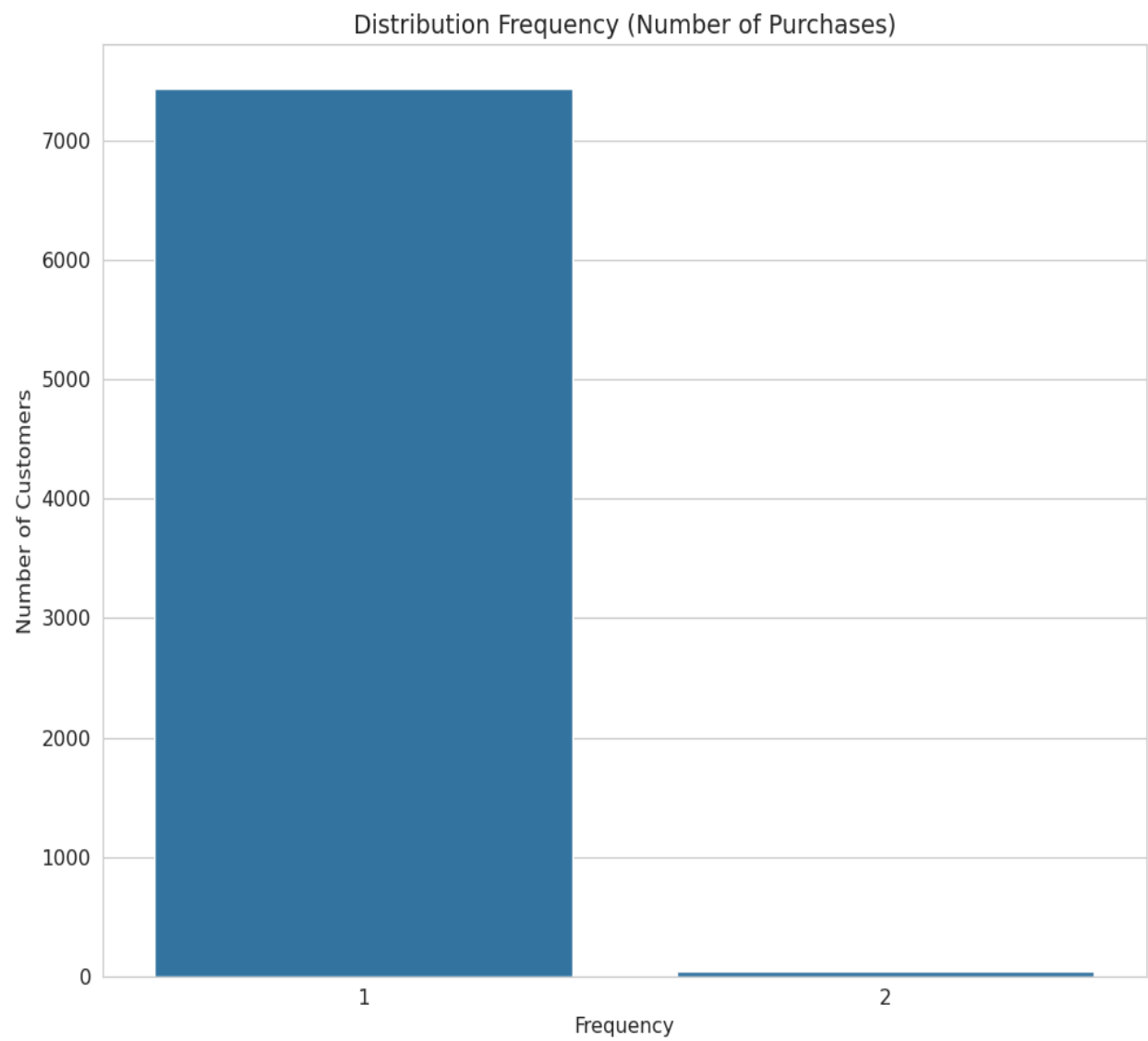


- Frequency clearly differentiates single (value **1.0**) and repeat (value **2.0**) buyers across all segments.
- Champions exhibit the lowest Recency (**most recent purchases**).
- Single Buyers (Moderate R & High M) show the highest average Monetary value among all segments, nearing **R\$ 600**, followed by Single Buyers (Hibernating & High M) and Single Buyers (High Value & Recent). This highlights significant value in one-time transactions.

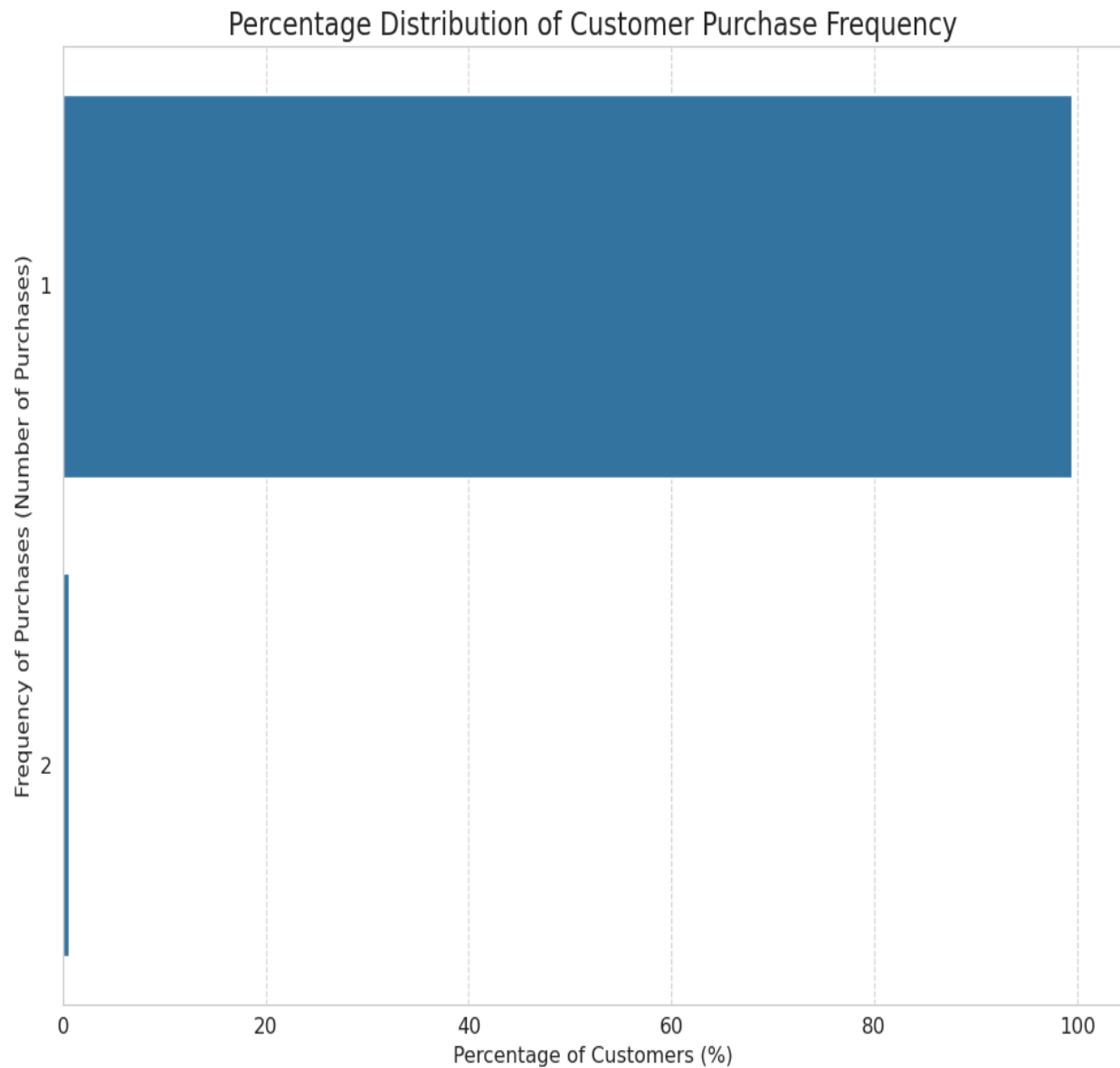
Customer Purchase Frequency

The distribution of customer purchase frequency underscores Olist's primary challenge regarding customer retention.

Distribution Frequency (Number of Purchases):



Percentage Distribution of Customer Purchase Frequency:

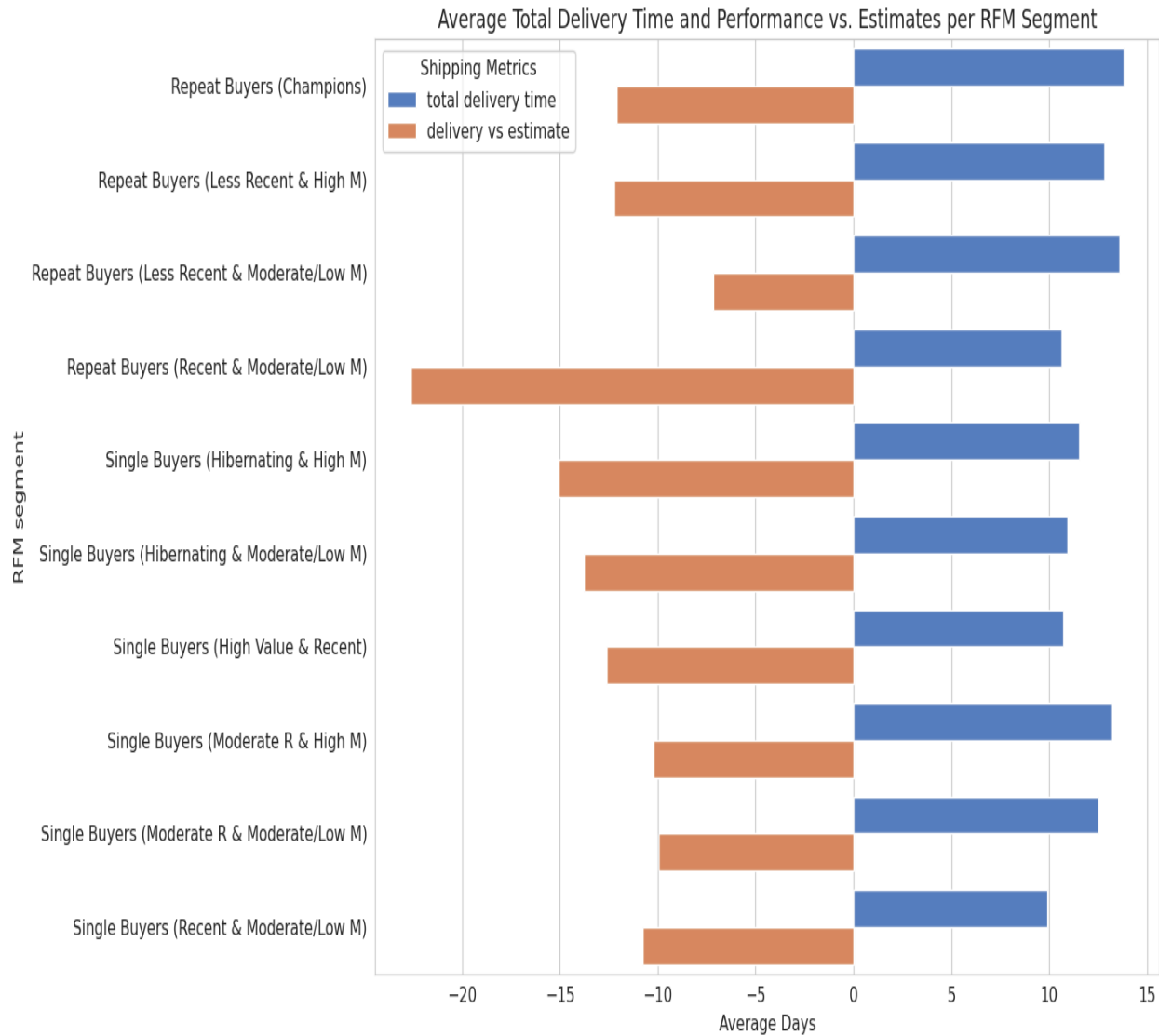


- An overwhelming majority (**over 99%**) of Olist's customers are one-time buyers.
- The number of customers making a second purchase is almost negligible. This indicates a significant "operational debt" in fostering repeat business.

Delivery Performance by RFM Segment

Delivery metrics are crucial for customer satisfaction and can influence repeat purchases.

Average Total Delivery Time and Performance vs. Estimates per RFM Segment:

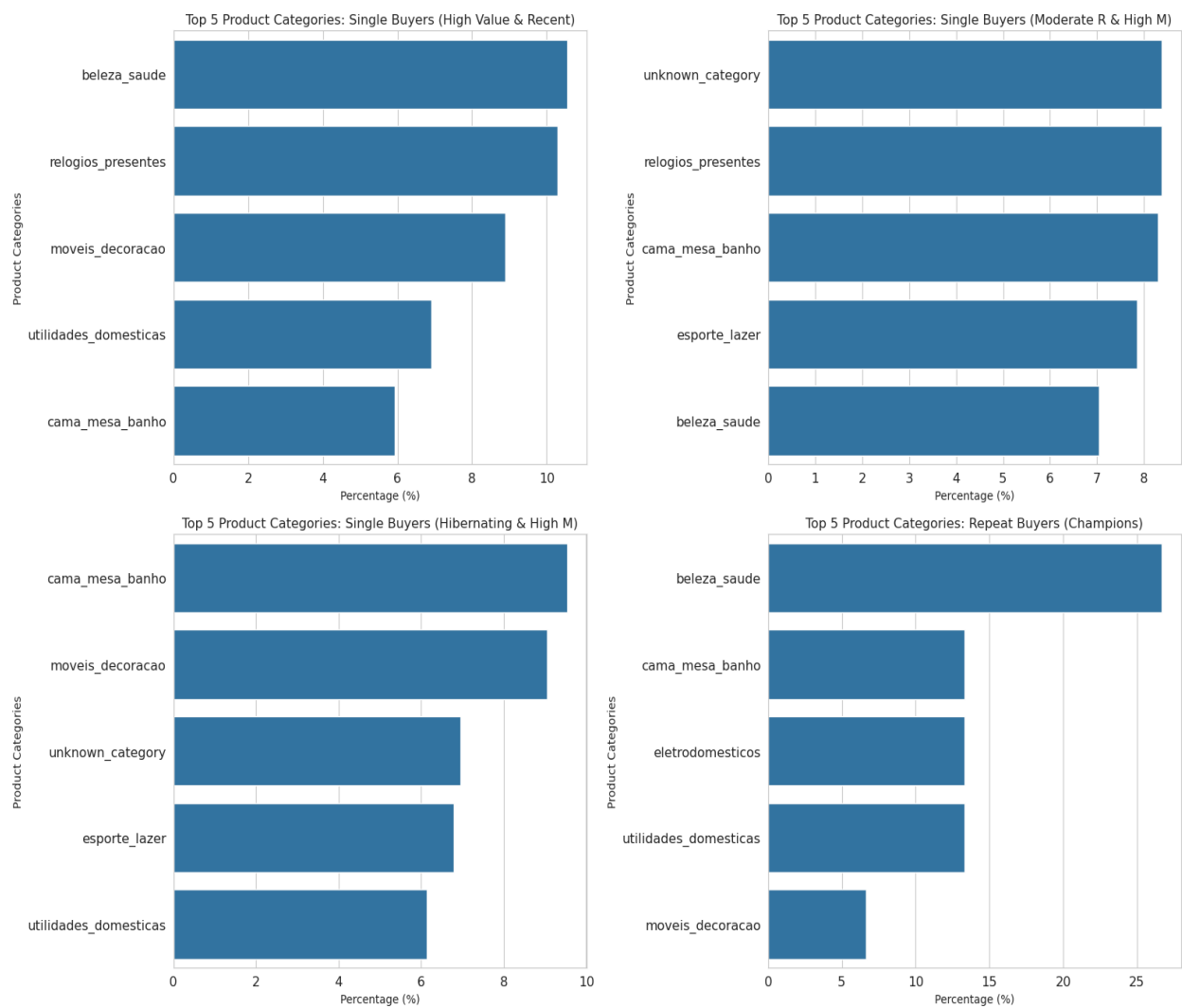


- Total Delivery Time is relatively consistent across all segments, ranging from **10 to 14** days.
- Olist consistently delivers orders earlier than estimated for all segments, indicated by negative delivery_vs_estimate values.
- Notably, Repeat Buyers (Recent & Moderate/Low M) receive their orders significantly earlier than expected (around **22** days earlier). This exceptional performance may contribute to their repeat purchases.

Product Category Preferences by Segment

Understanding preferred product categories can inform targeted marketing and inventory management.

Top 5 Product Categories per Segment (Key Segments):



- For Single Buyers (High Value & Recent), beleza_saude and relógios_presentes are dominant.
- cama_mesa_banho and moveis_decoracao are popular across various High M single buyer

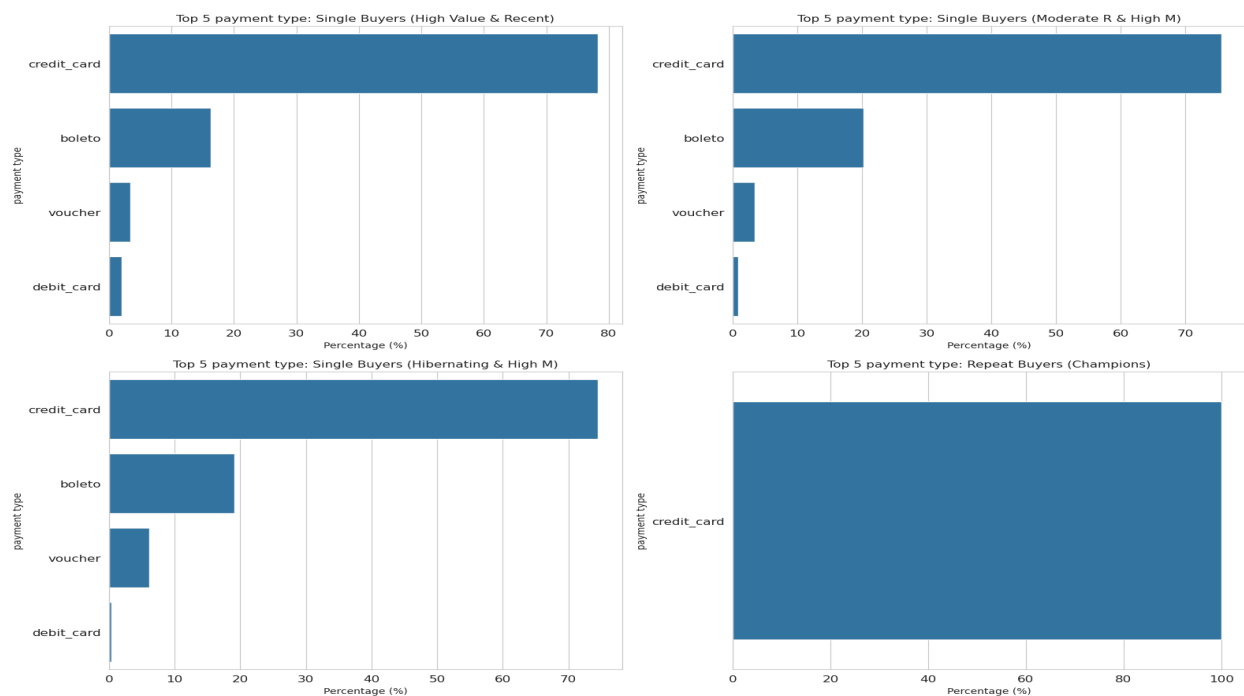
segments.

- `beleza_saude` is overwhelmingly preferred by Champions (**over 25%**), suggesting it's a strong loyalty driver.
- The persistence of `unknown_category` in top lists for Single Buyers indicates a **data quality issue**.

Payment Type Preferences by Segment

Payment preferences can impact transaction efficiency and customer experience.

Top 5 Payment Types per Segment (Key Segments):

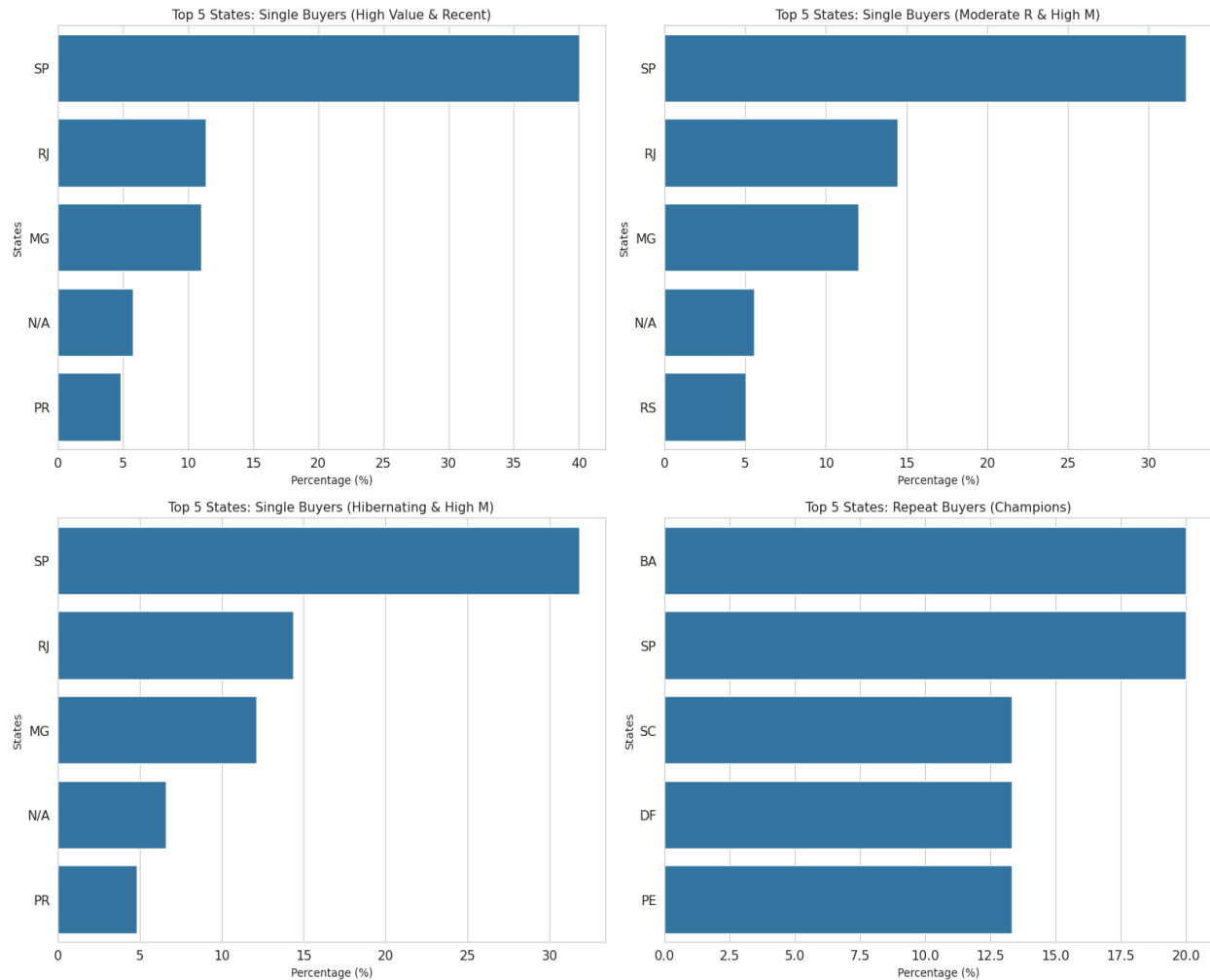


- Credit cards are the overwhelmingly preferred payment method across all high-value segments.
- Boleto is consistently the second most **popular** for Single Buyers.
- Champions exclusively use `credit_card` for their purchases (**100% usage**). This highlights a strong correlation between credit card usage and customer loyalty.

Customer State Distribution by Segment

Geographic insights help in localized marketing and logistics planning.

Top 5 Customer States per Segment (Key Segments):



- Single Buyers, especially those with high monetary value, are heavily concentrated in **SP, RJ, and MG**.
- Repeat Buyers (Champions) exhibit a more diversified geographic spread, with **BA, SC, DF, and PE** showing significant presence alongside SP.
- The recurring "N/A" in Single Buyers states indicates **missing customer location data**.

Recommendations and Next Steps

1. **Prioritize High-Value Single Buyers:** Implement targeted re-engagement campaigns for Single Buyers (Moderate R & High M), Single Buyers (Hibernating & High M), and Single Buyers (High Value & Recent). These customers have demonstrated a willingness to spend significantly.
2. **Leverage Delivery Excellence:** Continue to emphasize and potentially market Olist's consistent early delivery performance, as it is a strong positive for customer satisfaction.
3. **Investigate beleza_saude for Loyalty Drivers:** Analyze the factors contributing to the high preference for beleza_saude among Champions. Replicate successful strategies from this category to other product lines.
4. **Address Data Quality:** Prioritize fixing unknown_category for products and N/A for customer states to enable more precise analytical insights and targeted interventions.
5. **Optimize Operational Planning:** Use daily and hourly order trends to optimize staffing for customer service and logistics during peak periods (weekends, Monday, 9 AM - 3 PM).
6. **Payment Method Focus:** Consider incentives for credit card usage, especially for potentially high-value single buyers, given its correlation with repeat purchases among Champions.
7. **Geographic Targeting:** Maintain focus on SP, RJ, MG for acquisition. Explore successful localized strategies in BA, SC, DF, and PE that drive repeat purchases among Champions.