Final Visualizations and Story

Adithya Murali, Aditya Sindhavad, Ammar Mustafa, John Hwang, Manasa Maganti, Sameer Khan, Shashank Rao, Varsha Manju Jayakumar

Visualization Narratives and Design Choices

This visualization tracks the growth of e-commerce orders, highlighting a strong upward trend with a peak during Black Friday. The steep drop at the end is due to missing data rather than an actual decline in sales. This helps stakeholders understand seasonal demand and prepare for high-volume sales periods.

Insights:

- The steady increase in orders indicates a growing adoption of e-commerce, suggesting an expanding customer base.
- The Black Friday peak showcases the impact of sales campaigns, reinforcing the need for targeted marketing strategies during peak seasons.

- The sharp drop at the end is an artifact of incomplete data rather than a true decrease in sales, preventing misinterpretation of business performance.

Design Choices:

Color Scheme:

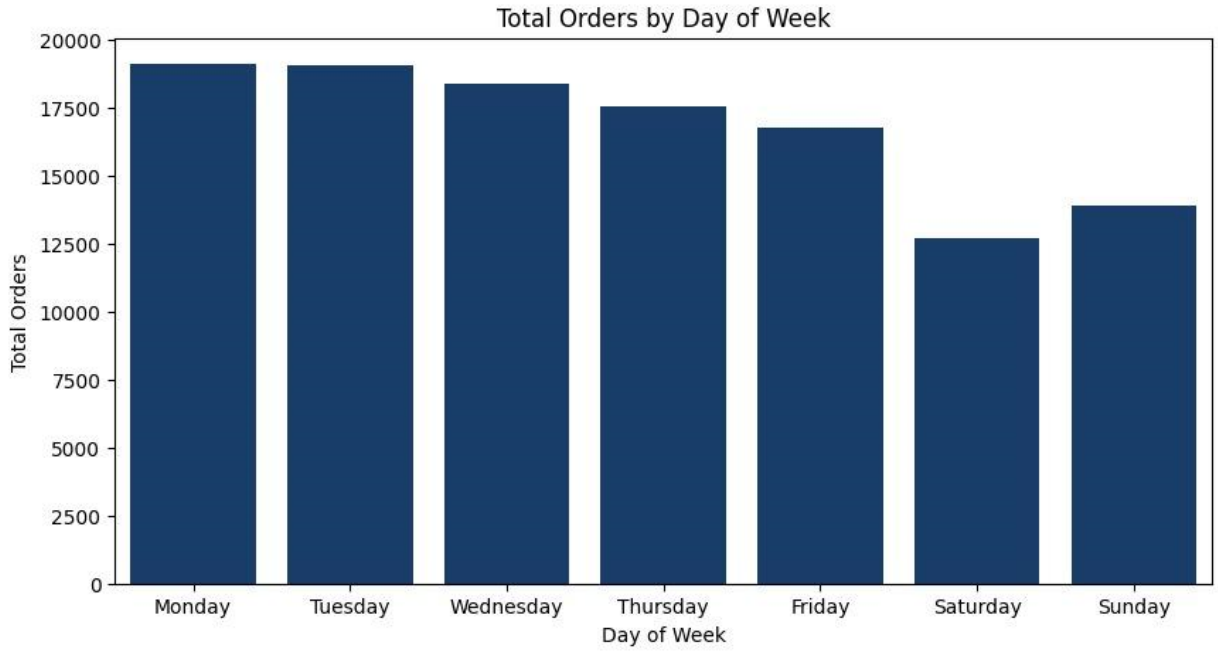
- A blue line was chosen to align with Olist's branding while ensuring high visibility against a light background.
- The peak sales periods (e.g., Black Friday) can be highlighted using darker shades or annotations for emphasis.

Typography:

- Sans-serif fonts ensure easy readability across all display types.
- Bold labels are used for key dates (e.g., Black Friday) to make trend spikes stand out.

Chart Type:

- A line chart was chosen because it effectively displays trends over time and reveals seasonal variations in a clear, intuitive way.
- A moving average line could be added to smooth out short-term fluctuations for better trend analysis.



The analysis shows that orders peak during weekdays, especially Monday and Tuesday, with a decline on weekends. Additionally, most purchases occur in the afternoon and evening, indicating peak shopping hours.

Insights:

- Monday and Tuesday spikes suggest that customers are more likely to shop at the beginning of the week, potentially after planning purchases over the weekend.
- Lower weekend orders may indicate that customers prefer physical shopping during leisure time, highlighting an opportunity for weekend-based promotions.
- Afternoon and evening peaks suggest that advertising and sales campaigns should be concentrated during these hours for maximum impact.

Design Choices:

Color Scheme:

- Dark blue bars were selected to create a strong contrast against a white/light background, making differences in sales volumes visually prominent.
- Lighter shades of blue could be used for weekend data, visually distinguishing lower sales days.

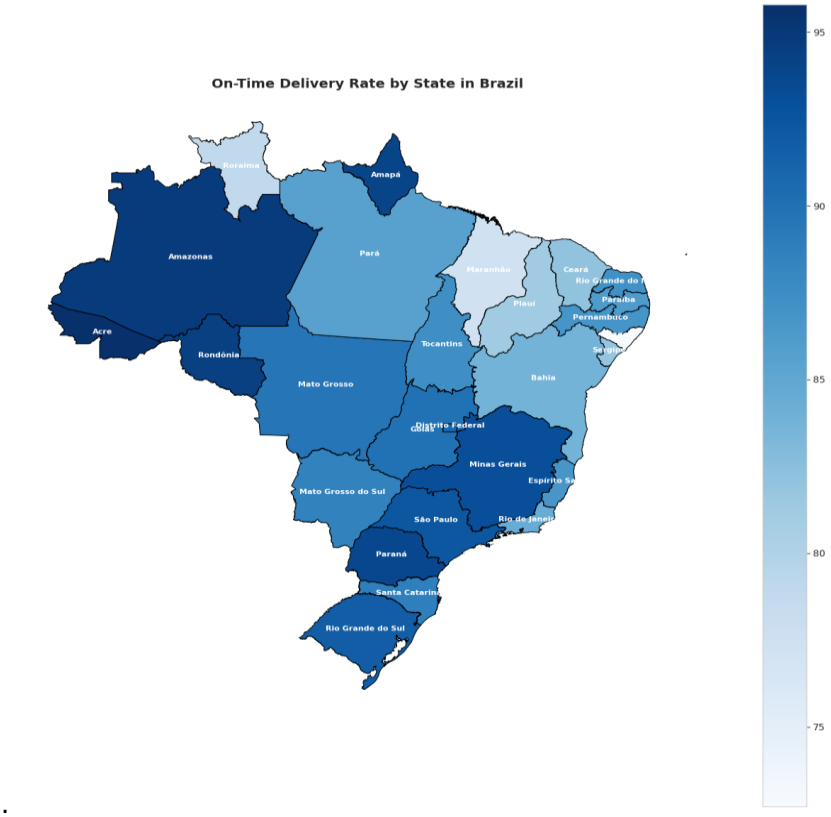
Typography:

- Larger labels for day names (Monday, Tuesday, etc.) ensure clarity.

- Rotated axis labels prevent text overlap when displaying hourly sales trends.

Chart Type:

- Vertical bar charts for weekday sales trends allow for easy comparisons between days.
- Horizontal bar charts for time-of-day trends enable better visibility of purchasing patterns.



These maps visualize customer density across Brazilian states and the efficiency of on-time deliveries. São Paulo has the highest customer concentration, while northern regions show lower engagement.

Insights:

- São Paulo's dominance in e-commerce orders aligns with its large population and economic influence, making it a key region for targeted marketing.
- Lower engagement in northern regions may be due to logistical challenges, fewer sellers, or lower digital adoption, which could be addressed through improved outreach and delivery infrastructure.
- On-time delivery efficiency is a critical metric that affects customer satisfaction, emphasizing the need for optimized logistics networks in underperforming areas.

Design Choices:

Color Scheme:

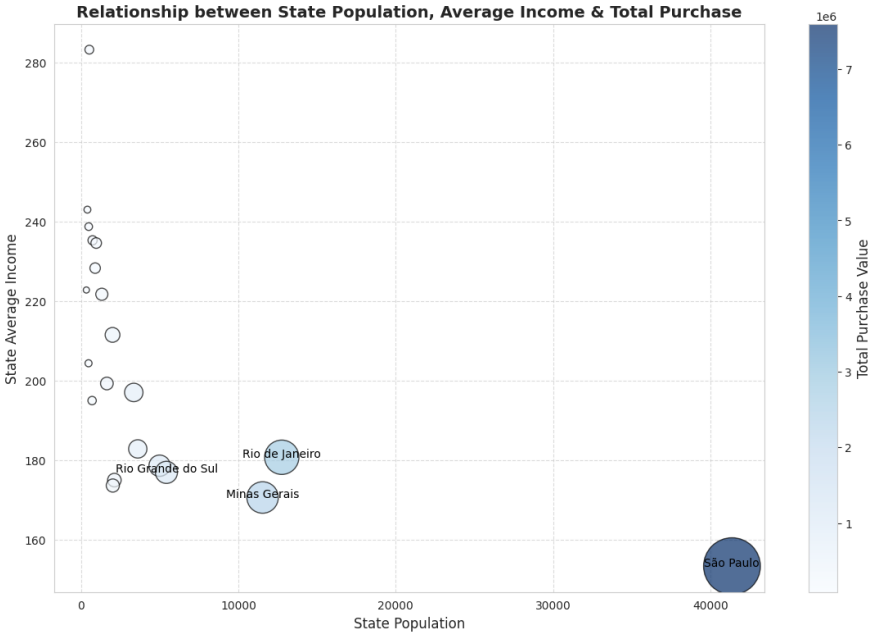
- A gradient blue color scale represents order volume—darker shades indicate higher engagement.
- A secondary heatmap overlay could show delivery efficiency (e.g., red for delays, green for on-time deliveries).

Typography:

- State names are clearly labeled to help users quickly identify key regions.
- Pop-up tooltips (in an interactive dashboard) could show exact order numbers per region.

Chart Type:

- A choropleth map was selected because it allows for an intuitive regional comparison of customer engagement.
- A bubble overlay could be used to indicate the relative number of orders per region.



This bubble chart highlights that higher total purchases are more correlated with population size rather than state average income. São Paulo dominates in both population and purchases, while smaller states have lower purchasing power.

Insights:

- The strong correlation between purchases and population indicates that urban areas with dense populations contribute the most to Olist's revenue.
- Smaller states with lower purchase volumes suggest a potential market expansion opportunity if targeted pricing, promotions, or seller onboarding strategies are implemented.
- High-income states do not necessarily translate to higher purchases, highlighting that factors like accessibility and digital adoption play a more significant role in e-commerce engagement.

Design Choices:

Color Scheme:

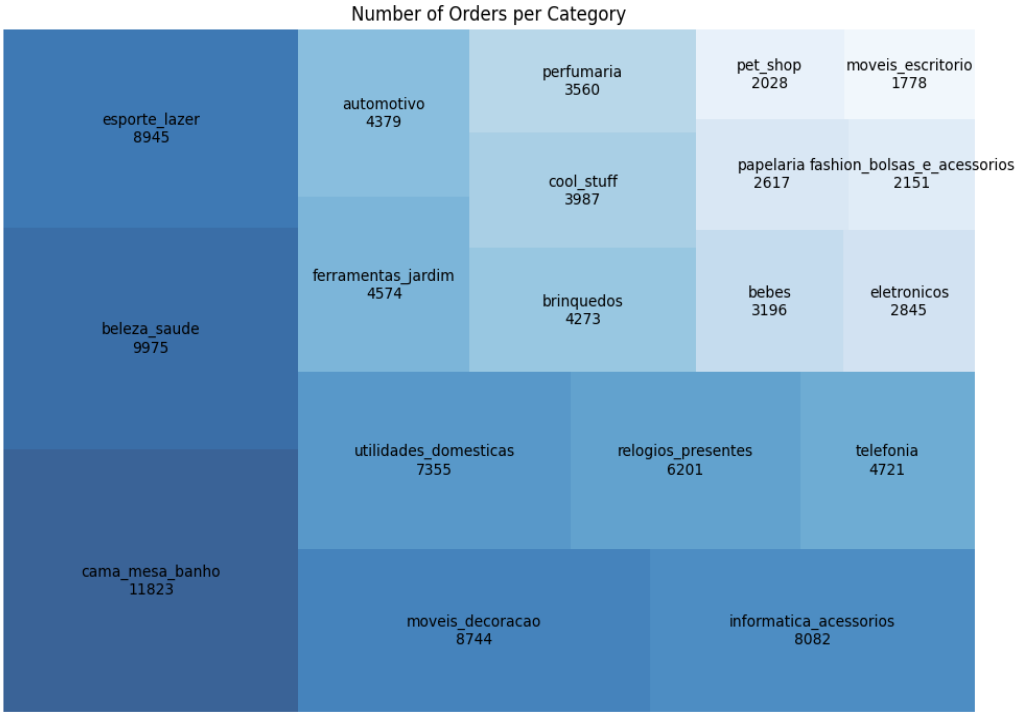
- Shades of blue represent total purchase values, ensuring consistency across the visualizations.
- Larger and darker bubbles represent higher transaction volumes, making key trends easy to spot.

Typography:

- State names positioned near bubbles help with readability.
- Subtle grid lines allow users to estimate relative purchase values without visual clutter.

Chart Type:

- A bubble chart was chosen because it effectively conveys three dimensions of data simultaneously—population size, purchase volume, and income level.
- Alternative: A scatter plot could be used, but it would not provide as strong a visual hierarchy as bubble sizes do.



This treemap showcases product demand, with categories like “cama_mesa_banho” and “beleza_saude” leading in total orders. This insight helps refine inventory strategies.

Insights:

- "Cama_mesa_banho" (bed, table, and bath) & "beleza_saude" (beauty & health) categories lead in demand, suggesting that home essentials and personal care items are top sellers.
- Lower engagement in niche categories may indicate an opportunity to improve product discoverability through better platform categorization or targeted ads.
- The treemap's hierarchical structure helps visualize which categories dominate sales, aiding sellers and Olist in prioritizing inventory stocking and marketing campaigns.

Design Choices:

Color Scheme:

- A gradient of blue tones was used to maintain brand consistency while differentiating categories.
- Higher demand categories are given darker shades, making them stand out at first glance.

Typography:

- Clear, bold text within each category block ensures that even smaller segments remain legible.
- Minimal use of axis labels prevents unnecessary visual clutter.

Chart Type:

- A treemap is ideal because it allows users to quickly identify which product categories contribute most to total sales.
- Alternative: A pie chart could have been used, but it would not convey hierarchical relationships as effectively.

Conclusion

These visualizations provide Olist's stakeholders with critical insights into sales patterns, customer behavior, and logistics performance. The design choices prioritize clarity, brand alignment, and interactivity, ensuring that the data is accessible and actionable for decision-making.