

Data Analysis Report - Nap Queen Sleep Company

This report presents the findings and insights obtained from the analysis of Nap Queen Sleep's Amazon marketing stream data. The dataset contains hourly trends data for various marketing campaigns on the Amazon website. Our objective was to gain valuable insights into campaign performance, sales trends, returns on ad spends (RoAS).

Data Preparation:

The dataset includes Amazon marketing stream data, product descriptions, and product mappings. The data cleaning and transformation steps involved removing duplicates, verifying data types, and ensuring data integrity. Numeric identifiers such as campaign_id, ad_group_id, ad_id, keyword_id was replaced with text for better readability, and null values in attributed_sales_7d, attributed_conversions_7d, and attributed_units_ordered_7d were handled appropriately. Error dates in the "timedata_pst" column were corrected by assuming the intended time zone as PST, based on the column name, and the cleaned dataset was loaded into Power BI for further analysis.

Dashboard Overview:

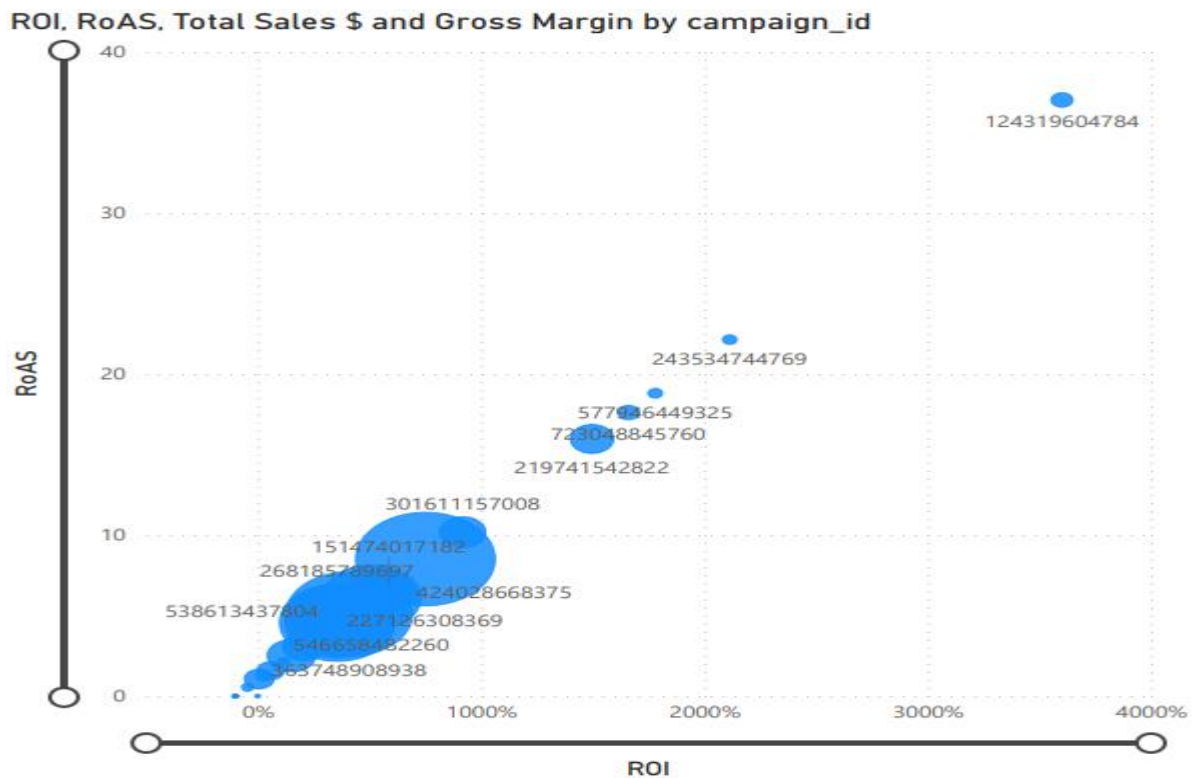
The Power BI dashboard for Nap Queen Sleep's Amazon marketing stream data provides valuable insights into various aspects of the marketing campaigns and their impact on sales. The dashboard is divided into three main sections:

1. **Campaign Performance:** This section focuses on analysing the performance of different marketing campaigns. Key metrics such as ROI (Return on Investment), RoAS (Return of Ad Spends), conversion rate, CTR (Click-Through Rate), and cost per acquisition are displayed for each campaign. Interactive visualizations allow users to explore campaign data based on time frames and other filters.
2. **Sales Trends:** In this section, we examine the sales trends of Nap Queen Sleep's products, categorized by Bed Frames, Mattresses, and Mattress Toppers. The line chart showcases the sales trends over time, helping identify periods of high and low sales. Users can analyse top-selling products and compare sales across different categories.
3. **Returns of Ad Spends (RoAS):** A scatter plot displays RoAS and ROI values for each campaign, and the size of the bubble represents the corresponding sales amount. This helps identify campaigns that provided the best returns on investment.

Answers to Questions:

1. **What marketing campaign(s) had the highest ROI, Return of Ad Spends (RoAS)? Provide visualizations to support your answer.**

Campaign ID 124319604784 achieved the highest ROI (3601.66%) and RoAS (37.02) during the analysed period. However, it is essential to consider the total sales amount during the campaign to assess its significance. Campaign ID 227126308369 also performed remarkably well, with an ROI of 751.03% and RoAS of 8.51, contributing \$11,984.86 to total sales.



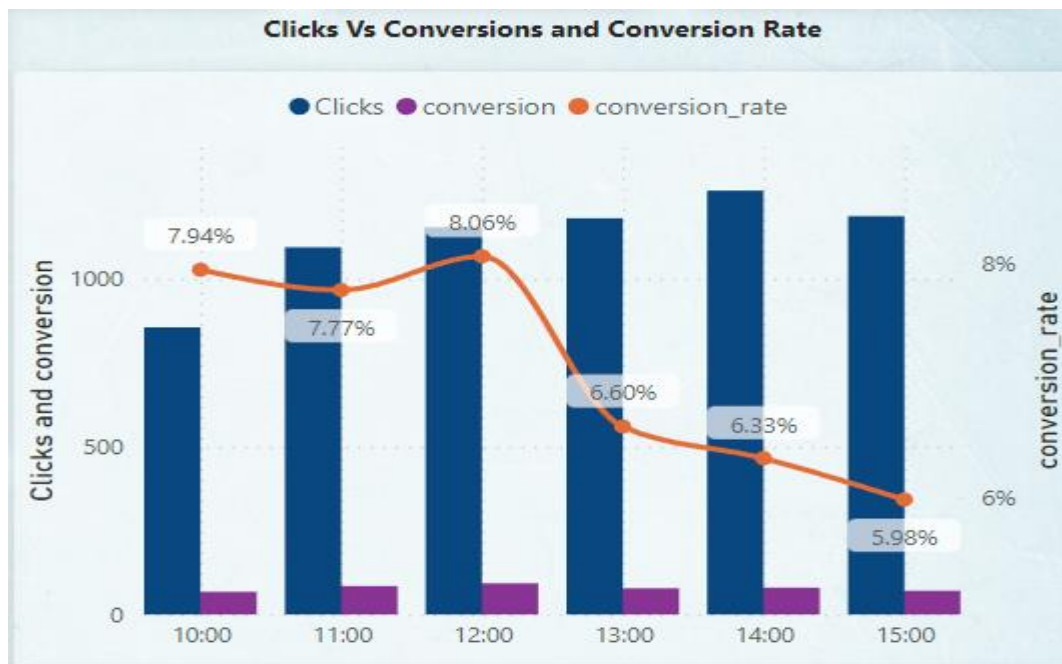
- How does the sales performance vary across different product categories? Present your findings in a suitable chart.

Mattresses were the top-selling product category, accounting for 97.49% of overall sales. Bed Frames and Mattress Toppers followed with 1.6% and 0.91%, respectively. The line chart in this section provides a visual representation of sales trends for each category.



3. How does each campaign behave and each item behave hourly?

The highest conversion rate (8.06%) was observed at 12:00 pm, while the lowest (5.98%) occurred at 3:00 pm. Users can interactively analyse individual campaign performance using slicers.



4. Correlation Between Campaign Timing and Sales Changes:

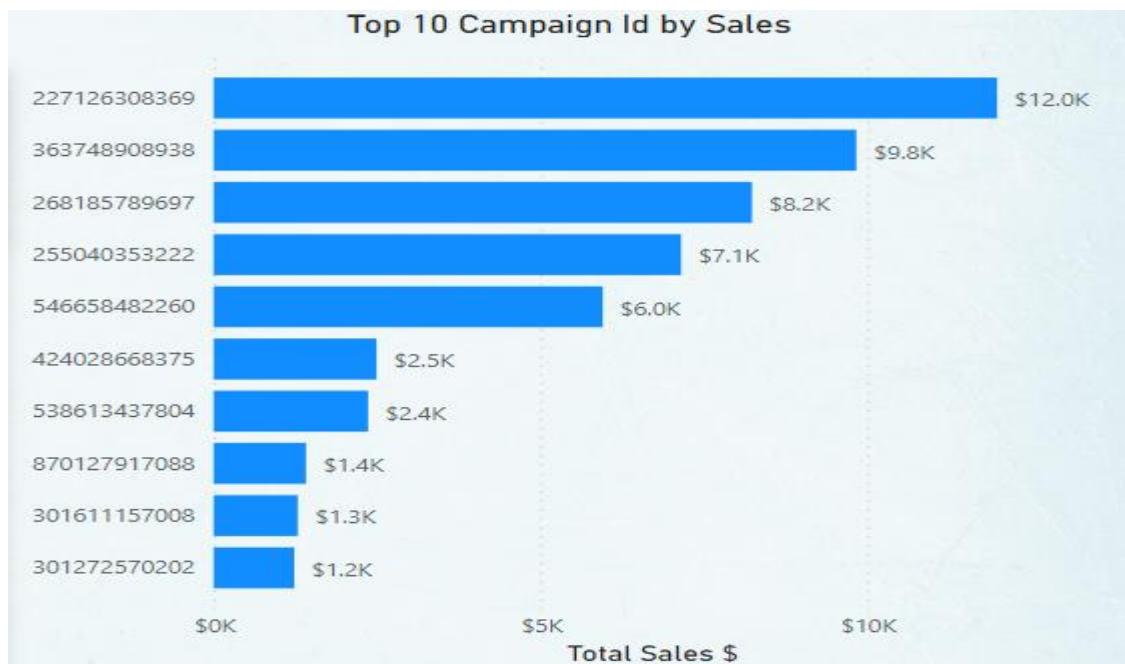
The correlation matrix showed a negative correlation (-0.083) between time and product sales, indicating that changes in product sales were not significantly affected by the timing of marketing campaigns.

Correlation between product sales and timing of marketing campaign



5. What is the overall trend of sales before, during, and after each marketing campaign? Are there any significant spikes or dips in sales?

The analysis of the sales trend revealed that out of 33 campaigns, five campaigns achieved exceptional sales of \$12k, \$9.8k, \$8.2k, \$7.1k, and \$6.0k, respectively. These campaigns had a significant positive impact on sales, indicating effective customer engagement. However, the majority of campaigns performed below expectations, with some even registering zero sales. Notably, campaigns with IDs 227126308369, 363748908938, 268185789697, 255040353222, and 546658482260 showed significant spikes in sales, demonstrating successful marketing efforts. Although visualizations for before and after campaign periods were not available, analysing sales during active campaigns provides valuable insights for optimizing future marketing strategies.

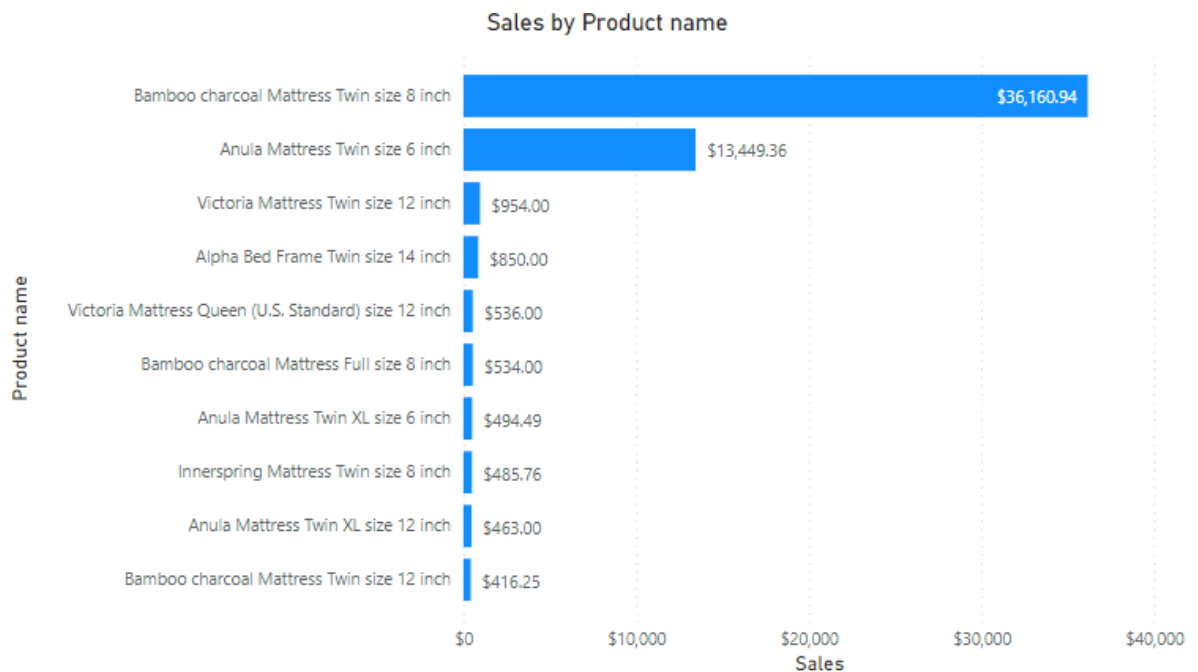


6. How can the marketing strategies be optimized to improve overall sales and customer engagement?

To optimize marketing strategies and improve overall sales and customer engagement, Nap Queen Sleep can take several key actions. Firstly, they should focus on targeted campaigns that have shown significant ROI and RoAS, such as Campaign 227126308369. By allocating more resources to these campaigns and refining their targeting, they can reach a more relevant audience. Recognizing the dominance of Mattresses in overall sales, Nap Queen Sleep should strategically promote best-selling products like the "Bamboo Charcoal Mattress Twin Size 8 inch" to maximize revenue. Additionally, they can explore opportunities to improve sales in other categories, like Bed Frames and Mattress Toppers, by offering targeted promotions or launching new campaigns.

7. Which products have shown the highest growth in sales during the campaign period? Are there any products that performed poorly during campaigns?

The best-selling product was "Bamboo Charcoal Mattress Twin Size 8 inch," contributing \$36,160.94 to total sales. However, some products performed poorly during campaigns, with 101 products registering zero sales.



8. A sudden change in the dataset format occurs, making it incompatible with the existing Power BI model. How would you handle this situation while maintaining progress on the dashboard creation?

To handle a sudden change in dataset format, the Power BI model needs to be adapted to accommodate the new data structure. This may involve updating transformation steps and DAX measures to ensure data integrity and continue analysing the data effectively

Also handling a sudden change in the dataset format while maintaining progress on the dashboard creation requires a systematic approach. Firstly, we need to carefully identify the changes in the dataset, including any modifications in columns, data types, or added/removed data. Update the data source connection to point to the new dataset format, and adapt the data transformation steps in Power Query accordingly. Review and modify DAX measures if the changes affect the calculations in the report. Adjust or recreate visuals to accommodate the new data format, ensuring that interactivity and slicers still function correctly. Thoroughly test the report to validate its accuracy and functionality. Document all changes made to the report for future reference. Communicate the dataset format changes to stakeholders and provide necessary guidance. Finally, schedule regular updates to keep the report current. Following these steps ensures a seamless transition and allows stakeholders to continue benefiting from the insights without major disruptions.

Conclusion:

In conclusion, the analysis of Nap Queen Sleep's Amazon marketing stream data has provided valuable insights into the performance of various marketing campaigns and their impact on product sales. Through the use of Power BI, we were able to transform raw data into interactive visualizations, enabling a deeper understanding of key metrics and trends.

The campaign performance section highlighted Campaign 124319604784 as the standout performer with an impressive ROI of 3601.66% and a high RoAS value of 37.02. However, it is essential to consider the total sales amount to gauge its overall significance. Campaign

227126308369 also showed good results with an ROI of 751.03% and contributed \$11,984.86 in total sales.

Sales trends analysis revealed that Mattresses dominated the product categories with 97.49% of overall sales, while Bed Frames and Mattress Toppers contributed 1.6% and 0.91%, respectively. Understanding these trends can help prioritize marketing efforts and resource allocation.

Analysing hourly behaviour identified peak performance periods, with the highest conversion rate recorded at 12:00 pm (8.06%) and the lowest at 3:00 pm (5.98%). This information, can help marketers to optimize campaign timings for better results.

The report suggests improving marketing strategies by focusing on promoting campaigns and offering discounts. The "Bamboo Charcoal Mattress Twin Size 8 inch" product, which contributed \$36,160.94 to total sales, can be highlighted during peak hours to maximize sales. Introducing discounts on other products can also attract customers and boost overall sales.