

Ecommerce Clickstream Analysis : Understanding user behavior to improve Conversion.

Project Overview

This project analyzes a clickstream dataset containing 10,000 user sessions from an ecommerce website. The goal was to understand user behaviour, traffic source performance, product engagement, and conversion patterns. The analysis was performed entirely in Power BI, with three structured report pages covering user engagement, marketing effectiveness, and sales trends.

Key Insights

Longer sessions (10+ minutes) led to significantly higher conversion rates.

The 45–54 age group had the highest number of purchases compared to other age groups.

Electronics was the most viewed and highest-revenue product category.

Direct and Social traffic sources contributed the most to overall purchases and revenue.

Organic traffic showed high order value but lower conversion efficiency.

Conversions peaked in February and October, while August was the weakest month.

A noticeable number of product categories were missing, labeled as blank.

User activity peaked between 8 PM and 10 PM, especially on weekdays.

Recommendations

Focus more on Direct and Social traffic — they performed the best across all KPIs.

Target marketing efforts toward the 45–54 age group and longer session users, as they showed high conversion.

Clean and maintain product category data to improve product-level analysis and personalization.

Utilize Customer ID and Product ID fields for advanced segmentation and deeper behavioural insights.

Design future marketing campaigns based on hourly user engagement trends, especially during evening peaks.

Conclusion

This e-commerce clickstream analysis uncovered key behavioural patterns, such as high conversions during longer sessions, strong performance from the 45–54 age group, and significant revenue from electronics and social traffic. The insights derived can directly inform user experience optimization, targeted marketing, and campaign planning. Overall, this project demonstrates the ability to turn raw session data into strategic business insights.