

PROJECT HIGHLIGHTS

This analysis evaluates TrendWave's social media advertising campaign efficiency and audience performance to guide smarter ad budget allocation. The key takeaways below summarize which demographics and campaigns deliver the strongest ROI, along with noted data limitations.

KEY INSIGHT-

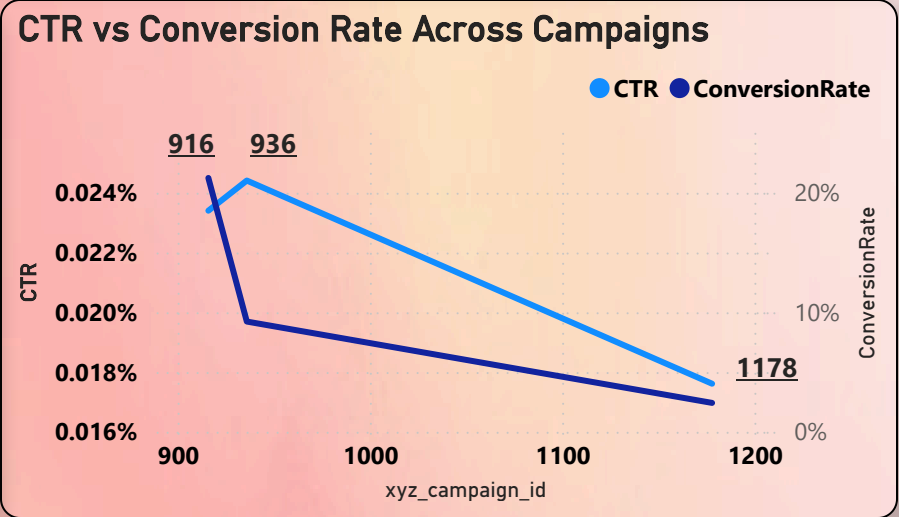
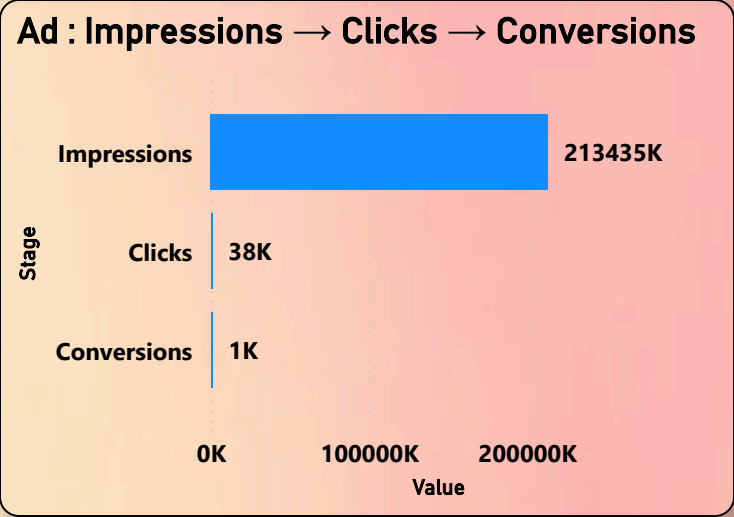
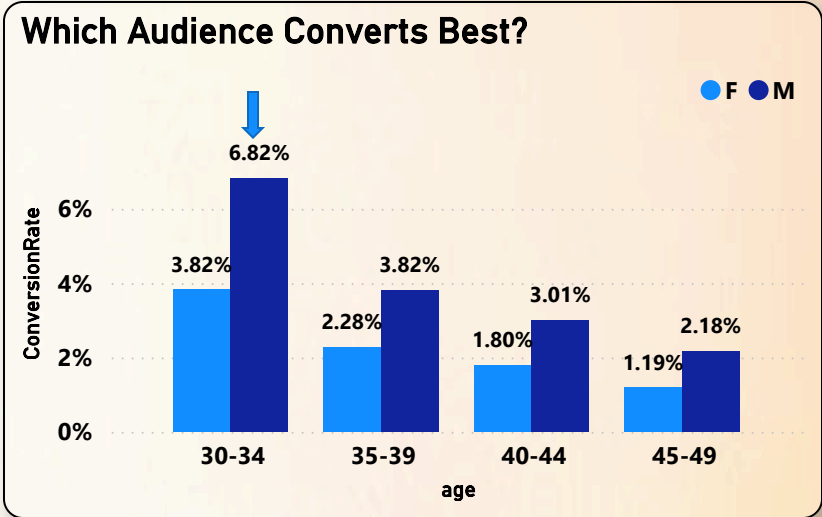
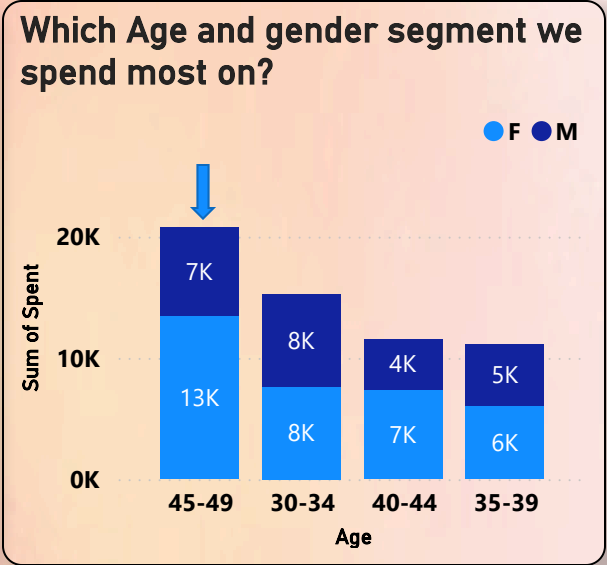
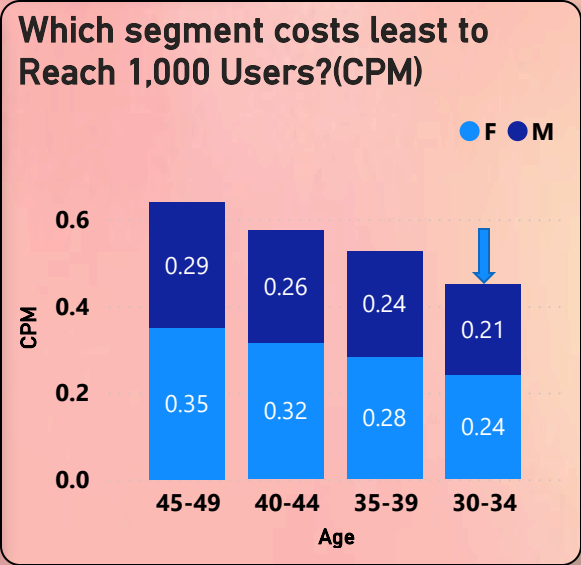
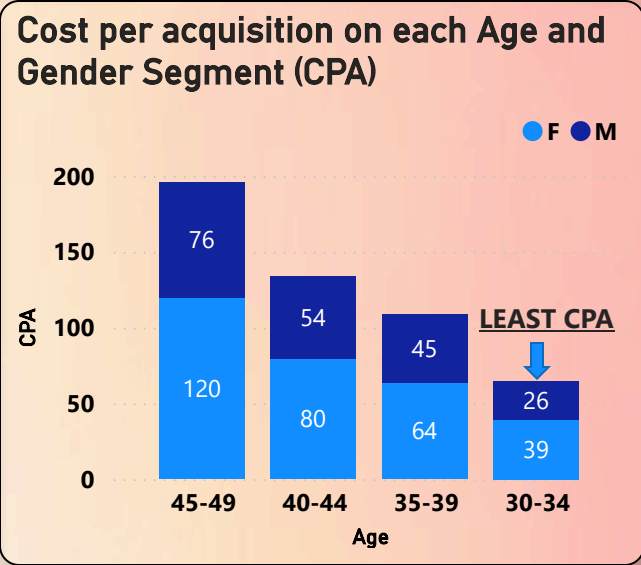
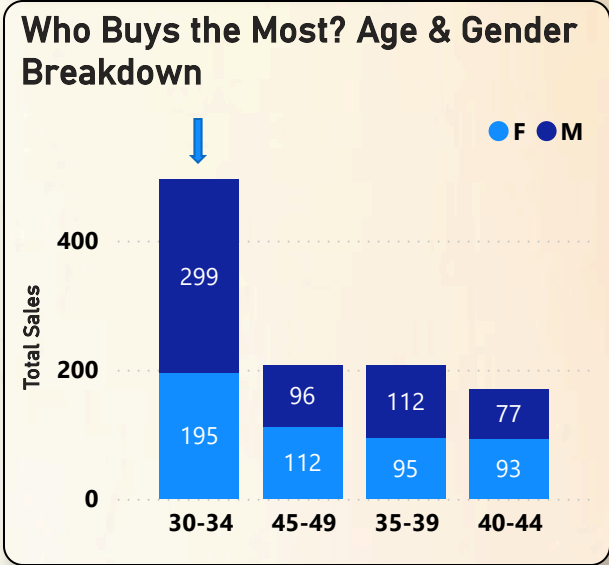
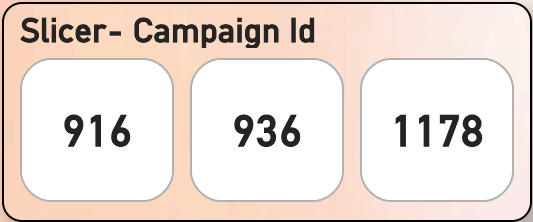
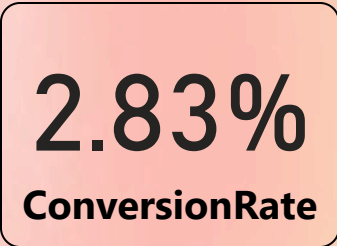
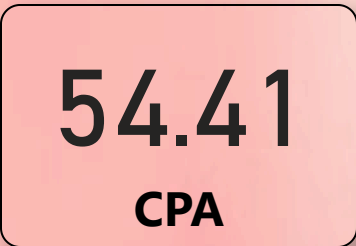
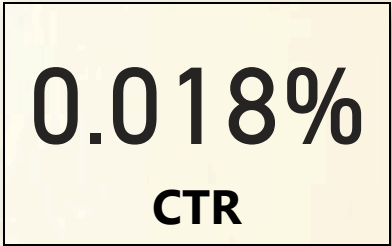
Demographics → Younger audiences (30–34, especially males) = most profitable (low CPA, low CPM, high conversions).

Campaigns → Campaign 936 = best ROI balance, 916 = Extremely efficient but small reach, 1178 = large scale but poor efficiency.

Overall Performance → CTR is universally low (0.018%) → ad creatives not engaging enough.

Limitation → No date column → true time-series/seasonality not analyzed

The following dashboard and analysis dive deeper into these findings, with detailed visuals and recommendations for budget optimization.



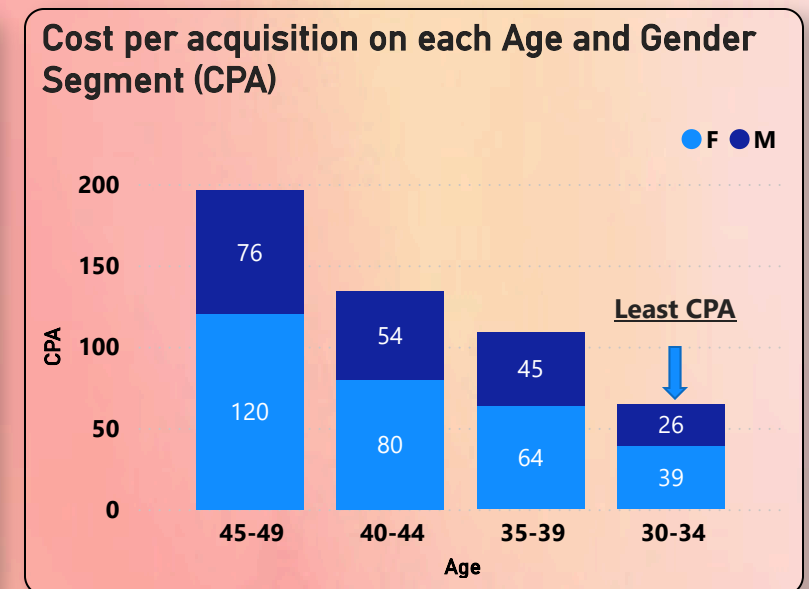
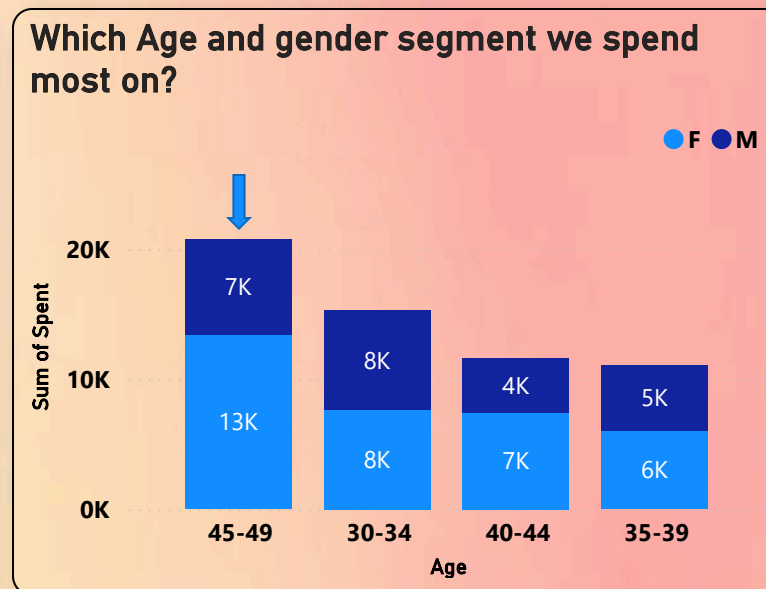
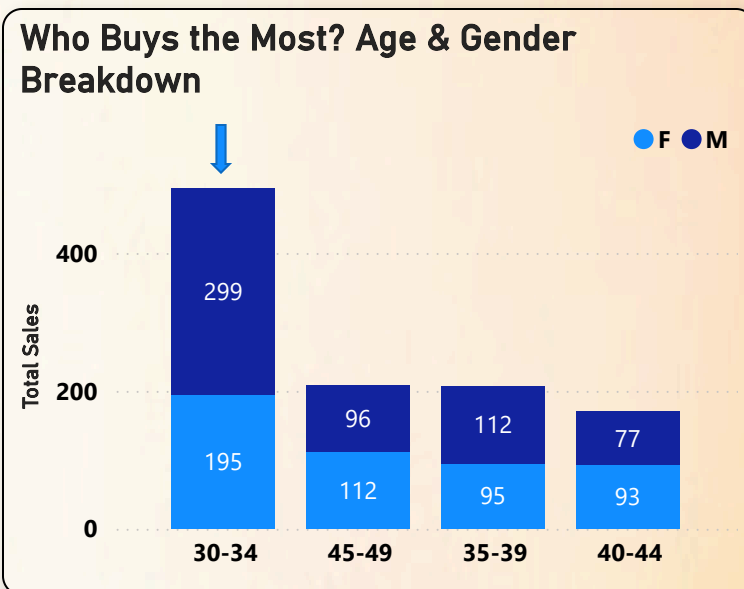
Problem Statement 1-

Which age and gender groups are responsible for the highest sales and ad spend, and how does their conversion efficiency compare?

- **Males 30–34** drove the **highest sales** while also maintaining the **lowest CPA**, making them the **most profitable segment, very efficient**.
- **Females 45–49** consumed significantly **high ad spend** but had **high CPA**, showing **poor efficiency**.
- Budget allocation is skewed toward older groups with weak ROI, while younger demographics bring better conversions at lower cost.

Recommendation-

- **Redirect budget toward age group 30–34** especially for **male** gender. They are most cost-efficient and high-converting segment.
- **Reduce spend on Females 45–49**, who deliver the weakest ROI with the highest CPA.



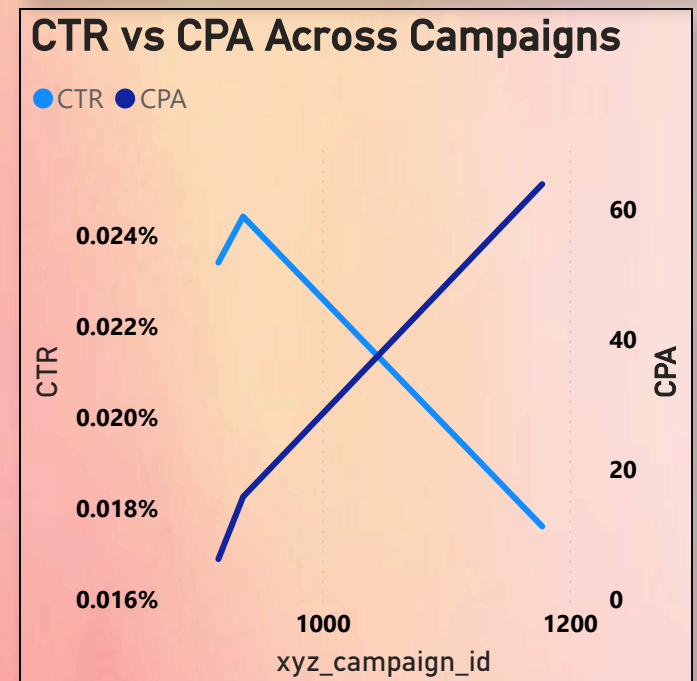
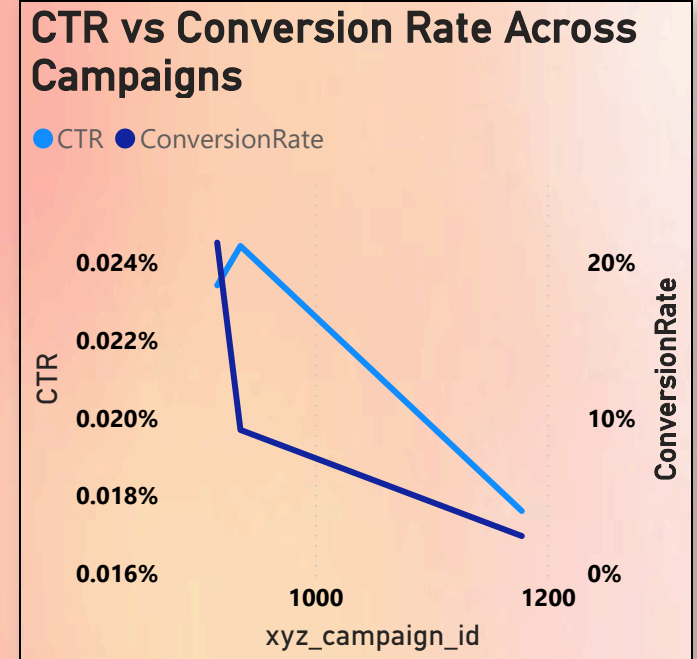
Problem Statement 2-

How effective is the campaign in converting impressions into clicks and clicks into sales, as demonstrated by CTR (Click Through Rate) and conversion rate?

- CTR across campaigns is **very low with only 0.018%**, showing Ads are not engaging enough to make good number of people click.
- **Campaign ID 916** → **Smaller CTR**(0.023%), but and **lowest CPA** (₹6.2) → **highly efficient but limited scale**.
- **Campaign ID 936** → **Best CTR** (0.024%) with a solid **conversion rate** (9.2%) and **moderate CPA** (₹15.8) → **the most balanced campaign**.
- **Campaign ID 1178** → **highest sales volume** but **weak CTR** (0.018%), **low conversion rate** (2.4%), and **highest CPA** (₹63.8) → **scale achieved at poor efficiency**.

Recommendation-

- I recommend for **Scaling campaign Id-916** with **higher budget** and **broader audience** could unlock more **cost-effective conversions**, it has a lot of potential.
- **Reallocate** a portion of Campaign **1178's large budget** towards **Campaign 916** (lowest CPA, high efficiency) and **Campaign 936** (best ROI balance).
- Maintain 1178 **for reach**, but **shifting spend will improve overall ROI** by combining **scale with efficiency**



Problem Statement 3-

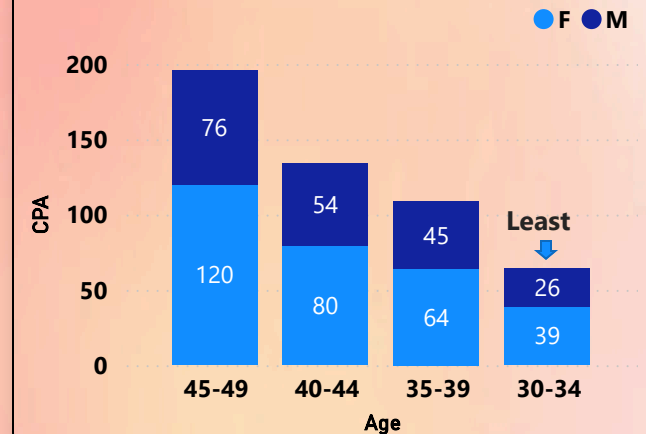
Are there significant differences in Cost per Action (CPA) and Cost per Mille (CPM) between different demographic segments, and what does this imply for budget optimization?

- Both CPA and CPM follow a similar trend across age groups.
- Both **CPA** and **CPM** are **lowest for the 30–34** segment, especially **Males**, making it the **most cost-efficient group** to target
- The **45–49** segment, especially **Females**, has the **highest CPA** and **CPM**, meaning ads are **costly to run** and also **ineffective at driving sales**.
- This indicates **younger demographics** not only **convert better** but are also **cheaper to reach**.

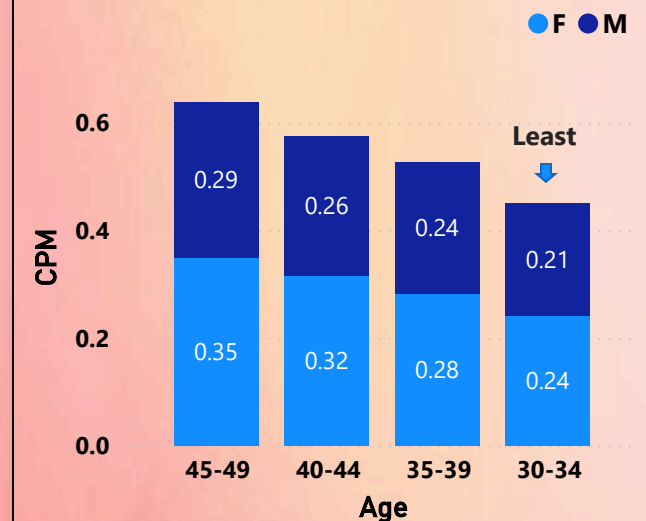
Recommendation-

- Prioritize** budget on **30–34** segment, focusing more on **males**, as the **most profitable demographic** (low CPA, low CPM, high conversions), while **reducing spend** on **45–49** segment, who **drive the weakest ROI**.

Cost per acquisition on each Age and Gender Segment (CPA)



Which segment costs least to Reach 1,000 Users?(CPM)



FINAL RECOMMENDATION

- **Demographics** → Reallocate budget toward the 30–34 age group (especially males), the most profitable segment with lowest CPA and CPM. Reduce spend on the 45–49 group, particularly females, who deliver weak ROI.
- **Campaigns** → Scale Campaign 916 by expanding reach (lowest CPA, strongest conversion efficiency). Prioritize Campaign 936 for sustained investment (best ROI balance).
- **Optimization** → Maintain Campaign 1178 for reach but optimize targeting/creatives, and reallocate part of its budget toward 916 & 936 to improve overall ROI.
- **Creative Strategy** → CTR is universally low (0.018%), signaling weak ad engagement. Creative content and better audience alignment are required to improve click through rate.
- **Limitation** → Dataset lacks date fields, so time-series/seasonality analysis was not possible. Future campaigns should track daily/weekly performance for deeper analysis and optimization.