Documentation

Title

- Campaign performance review and budget optimization by age–gender cohorts.
- Scope: impressions, clicks, spend, conversions, and efficiency metrics across 30–34, 35–39, 40–44, and 45–49 by male/female segments.

Business objective

- Increase profitable sales by reallocating spend toward cohorts with low cost per acquisition and strong conversion rates while constraining inefficient segments.
- Secondary goals: lower blended CPA and stabilize funnel quality (CTR→CVR) without sacrificing volume.

Data overview

- Source: “KAG_conversion_data_raw.xlsx” (KAG_conversion_data_raw, pivot) with fields for age, gender, interest, impressions, clicks, spend, total and approved conversions, and derived cohort key Age_Gender_group.
- Granularity: ad level rows aggregated to age–gender cohorts for reporting and optimization decisions.

Preprocessing steps

- Standardized field names, created Age_Gender_group, and derived metrics: CTR, CVR, CPC, CPA, CPM with safeguards for divide-by-zero where clicks or impressions were zero.
- Built pivot summaries by cohort (sales, spend, average CPA, CPM, CTR, CVR) to feed visuals and recommendations.

Metric definitions

- CTR measures how often people who see an ad end up clicking: CTR=Clicks/Impressions×100 %
- CPC is average cost per click: CPC=Spend/Clicks.
- CPA is cost per acquisition: CPA=Spend/Approved Conversions.
- Conversion rate (CVR) is purchases per click: CVR=Approved Conversions/Clicks×100%.

CPA and CPM by cohort

- 30–34 Male shows the lowest CPA (10.13) and the lowest CPM (0.148), indicating both cheap reach and cheap conversions versus all other cohorts.
- 45–49 Female has the highest CPA (36.16) and the highest CPM (0.369), signaling expensive reach and costly conversions that drag blended efficiency.

Funnel quality (CTR vs CVR)

- CTR is higher in older female cohorts, but CVR is meaningfully lower (e.g., 40–44 Female CVR 3.5%), suggesting curiosity clicks that fail to convert efficiently.
- 30–34 cohorts combine moderate CTR with the strongest CVR (11%), which is ideal for scaling profitably.

Sales and spend distribution

- Top-performing volume cohort is 30–34 Male with 299 sales; spend (7.6K) is similar to 30–34 Female but yields 1.5× more sales, indicating superior efficiency at comparable budget.
- 45–49 Female consumes the most spend (13.4K) but generates only 112 sales, confirming over-investment in a weak ROI segment.

Performance metrics snapshot

- 30–34 Male: best value with lowest CPA and CPM plus top CVR, making it the most cost-effective and scalable audience.
- 35–39 Male and 40–44 Male: mid-pack CPAs with decent CVR; maintain controlled budgets and optimize creatives/targeting for incremental gains.

Budget allocation plan

- Increase budget to 30–34 Male first, then 30–34 Female, to reduce blended CPA while preserving or growing sales volume.
- Reduce or cap prospecting on 45–49 Female; shift to retargeting/tests until CPA and CVR improve meaningfully.

Optimization steps

- Creative and offer tuning for lower-performing female 40–49 cohorts to align message/landing pages and raise CVR before adding budget.
- Bidding/targeting: apply negative bid modifiers or exclusions for high-CPA segments; expand lookalikes/affinities seeded from 30–34 Male converters to scale efficiently.

Measurement and guardrails

- Monitor marginal CPA and hold-out tests weekly; scale cohorts only while incremental CPA remains near baseline to avoid saturation drag on efficiency.
- Track funnel shifts (CTR and CVR) alongside CPA to catch creative fatigue or targeting drift early.

Tools and libraries

- Data prep and pivots in Excel/Sheets.

Appendix formulas

Weighted cohort metrics for ongoing reporting can be computed as:

CPA = Spend / Approved Conversion

CVR = Approved Conversion / Clicks

CPC = Spend / Clicks