

Part 1:

Experiment Design:

1. Select a representative sample of users (For instance, 20% of total user base)
2. Split into two groups:
 - Test Group: Increase Email ad spend by 50%
 - Control Group: Maintain current Email ad spend
3. Run experiment for 30 days to capture sufficient data

Success Metrics:

1. Primary: ROI (Revenue / Ad Cost) remains stable or improve
2. Secondary:
 - Install conversion rate (Installs / Impressions)
 - Cost per install (Ad Cost / Installs)
 - Revenue per install (Revenue / Installs)

Analysis Plan:

1. Compare test vs control group performance across all metrics
2. Conduct statistical significance testing on key metrics
3. If successful, gradually scale up Email spend while monitoring performance
4. If unsuccessful, analyze root causes (e.g., audience saturation, creative fatigue)

This experiment allows for data-driven decision making while mitigating risks associated with scaling a high-ROI but low-volume channel.

Part 2:

1. User Engagement Metrics

- Track time spent in app per session
- Monitor specific feature usage patterns
- Analyze user flows between features

Business Value:

- Identify most engaging features to prioritize development
- Detect friction points in user experience
- Optimize feature placement and onboarding
- Increase user retention and lifetime value

2. Churn Rate

- Track percentage of users who stop using the app over time
- Analyze churn by acquisition channel and platform
- Identify patterns in user behavior leading to churn

Business Value:

- Detect and address pain points in user experience
- Develop targeted retention campaigns
- Improve overall user engagement and satisfaction
- Reduce customer acquisition costs by increasing retention

Part 3:

Average Revenue Per User (ARPU)

- Analyze if ARPU has decreased across all channels

- Helps identify if the issue is with overall spending patterns rather than specific channels

Pricing Changes

- Verify if any price adjustments were made in mid-March
- Price increases could reduce purchase volume while maintaining installs

App Store Reviews

- Check for recent negative reviews or complaints
- Might reveal user experience issues affecting purchasing decisions

Promotional Campaigns

- Review if any campaigns ended around mid-March
- Could explain a drop in revenue if previous campaigns were driving purchases

Technical Issues

- Investigate if there were any payment processing failures
- Technical problems could prevent users from completing purchases

Competitor Activity

- Check if competitors launched new products or features
- Could explain a shift in user spending patterns