Value of frequency planning for ads in Stories
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Marketer Takeaways

With most mass media channels, marketers are used to optimizing for reach or for frequency, but are not always able to do both at the same time.

Digital platforms like Snapchat, where users log in using the same identifier across sessions, provide advertisers with the ability to buy ads with both reach and frequency in mind and achieve greater efficiency.

Although research exists on the importance of frequency planning for driving marketing outcomes in traditional media and feed-based digital ad campaigns, little exists in the public domain about ad campaigns in relatively new formats like Stories. In this paper, we explore these relationships for ad campaigns utilizing only Snap Ads, Snapchat’s advertising product that allows advertisers to reach their target audience in Stories.
**Weekly frequency of Snap Ad exposure impacts the ability for an ad to breakthrough.**

We found that the frequency of exposure was significantly related to the lift in ad breakthrough, with the most pronounced increases observed with up to a frequency of around 2 a week.

**A lower weekly frequency is sufficient for longer campaigns.**

For campaigns running 5-12 weeks, we found a frequency of ~1 a week drove 75% of the estimated total campaign impact in ad breakthrough. Shorter campaigns of 1-4 weeks needed a higher frequency of ~2 a week to drive the same level of impact.

**The frequency required for driving intent differs by vertical.**

We examined campaigns in CPG and entertainment verticals and although we found no evidence of differences in ad breakthrough by vertical, we did observe differences in action intent. For short entertainment campaigns running 1-4 weeks, 75% of the total potential campaign lift was achieved with a frequency of ~2 a week. In contrast, CPG campaigns required a higher frequency of ~3 a week to drive the same level of impact (Figure 5b).

New buying tools like Snap Ads Reach and Frequency help advertisers better control unique reach and frequency for ad campaigns in Stories; the results here can inform how advertisers set their frequency levels to realize the full potential of their ad campaigns and thereby facilitate the reach planning portion of their campaigns.

**Key takeaways**

- The data shows the relevance of applying traditional principles of campaign frequency planning to new digital formats like Stories.
Introduction

There are many factors affecting the ability of an ad campaign to shift sentiment and behavior of its audience; the timing of the campaign, the relevance of the product being marketed and the quality of the creative, to name a few.

When activating a marketing campaign on a chosen media, brand marketers will often consider two key media planning decisions:

A) The level of reach required among their target audience and

B) The intensity, or frequency, of that reach required for the ad to breakthrough and ultimately change behavior.

The reach and frequency of a media are of course interrelated, but with most mass media channels, marketers can optimize for one or the other, rarely both at the same time.

Digital platforms like Snapchat, where users log in using the same identifier across sessions, let advertisers plan and buy media with more refined control over unique reach and/or frequency. To take advantage of this control, advertisers need to better understand how the frequency of exposure influences the impact of their ads.

The importance of frequency for effective advertising was first described by Herbert Krugman1 almost half a century ago, through his three stages of response to advertising theory: curiosity, recognition, and decision.

Although research has been carried out in this area for traditional advertising and feed-based ads, less well-understood is the impact of frequency in relatively new media like Stories, an immersive, fullscreen user experience consumed almost exclusively on a mobile device.

The focus of this paper is on better understanding how the frequency of Snap Ads—ads in Snapchat Stories—impacts a campaign’s success in resonating with its audience, and the influence of market and media factors on this impact.

Snap Ads & Stories: A Unique Storytelling Opportunity

On Snapchat, users create Snaps in the form of images or videos and modify them with multiple editing tools. A Story is a collection of Snaps that play in the order they were taken. Unlike some feed based formats, where user content can persist for potentially long periods of time, Stories are only available for 24 hours. The Stories format is popular among many social media sites, where users follow a similar flow of content creation and sharing.

Ads in Stories (or Snap Ads on Snapchat) are a vertical full screen ad unit which appears in between Stories.

1 Source: Krugman, H.E. "Why Three Exposures May Be Enough." Journal of Advertising Research 12, 6 (1972): 11-14
Methodology

The brand response data in this analysis was collected using Snapchat’s brand lift methodology, which for each campaign measured served brand polls to both a sample of the target audience who was exposed to a campaign and a comparable control group.

The resulting brand lift—the impact of the Snapchat ad campaign on driving brand response above and beyond what would’ve occurred without ad exposure—is calculated through comparison of the brand response between the exposed and control groups. In this paper, the focus is on two brand lift metrics:

1. **Ad breakthrough** - the extent to which the ad campaign is noticed and recalled by the audience.

2. **Action intent** - the extent to which the ad campaign elicits the desired action, e.g. intention to make a purchase in the next 7 days or watch a newly released movie online.

The principal goal of this analysis was to understand the relationship between the frequency of Snap Ads exposure and subsequent brand response, and the influence of select media and market factors on this relationship.

Managing Reach and Frequency with Snap Ads

In Snapchat’s reach and frequency (R&F) tool, an advertiser can select both a unique reach goal and a frequency cap. This allows for efficient delivery towards their unique reach goal while ensuring their audience see no more than the capped number of ad impressions for the campaign across their time period of choice.

A key focus of this research therefore, was to quantify the maximum weekly frequency required to achieve a particular level of brand response. Modelling the relationship between brand lift and the 75th percentile of frequency per week, rather than the mean or median, facilitated the use of these results for guiding the setting of frequency caps in Snapchat’s R&F product.²

Methodology

We used a two-stage approach to estimate the relationship between frequency and subsequent brand lift:

1. **Estimate study level dose-response between frequency of exposure and brand lift**

To allow for exploration of a wider frequency range and to allow sub-analyses by campaign length and advertiser vertical, we focused this analysis on historical campaigns only. Using these observational data for causal inferences however required us to adjust for potential statistical confounders of age, gender and friend count (all strong predictors of activity on the app and subsequent level of ad exposure).

In this first stage, we split ad exposed respondents into three equal sized cohorts based on their weekly frequency distribution. We then estimated the brand lift resulting from ad exposure for each cohort in a logistic regression model, adjusting for the aforementioned confounders. Each frequency cohort was summarized using the 75th percentile of frequency per week—a proxy for the upper weekly limit of frequency—providing us with a dataset of regression-adjusted brand lift estimates at different frequency thresholds for each study.

2. **Estimate pooled dose-response relationship across studies**

The above study-level data was used to carry out a random effects meta-analysis to estimate potential nonlinear relationships between frequency and each of two brand lift measures: ad breakthrough and action intent. This approach was used to take into account the correlation between the estimated brand lift results within each study and then combine these results to estimate an overall average trend, accounting for differences between studies in a multivariate random-effects meta-analysis.

The trend for each dataset considered was assessed using restricted cubic splines with 3 knots placed at quartiles (25%, 50%, and 75%) of the overall pooled frequency distribution. The resulting mean predictions of lift at different frequency levels and associated 90% prediction intervals were estimated for each meta-model and are described throughout this paper.

Model selection and assessment

The confounders described in the previous section were included a priori in the study-specific models from Stage 1.

We assessed the goodness of fit for the individual dose-response models in Stage 2 through assessing the overall p-value for the trend component to test for equality to zero, and the adjusted R-squared statistic. Statistical heterogeneity among studies was assessed using the \( \chi^2 \) test, with statistical heterogeneity further quantified using the multivariate generalization of the I\(^2\) statistic. The level of heterogeneity varied across the individual dose response models discussed, motivating the use of a prediction interval, over a confidence interval, for displaying estimates and provide a better sense of the uncertainty around the effect estimates.

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Data

For this meta-analysis, we combined the results from 103 blinded brand measurement campaigns bought in the auction and consisting exclusively of Snap Ads in Stories. These campaigns ran between April 2017 and May 2018 and mostly in the US (75%) and the UK (12%)4.

Stratified analyses

Campaign length
To better understand the influence of campaign length, we split campaigns into two roughly equal sized groups by the median campaign length of 4 weeks. We then explored the relationship between frequency and ad breakthrough separately for campaigns of 1-4 weeks (53% of total campaigns), or 5-12 weeks.

Vertical
In light of the finding of differences in the frequency relationship by campaign length, we focused the vertical-specific analyses on the 55 short length campaigns only (1-4 weeks). Further, our analysis explored differences in the frequency relationship for CPG and entertainment only (n=29), on the basis of the relatively greater concentration of campaigns for these two verticals.

Given inherent differences in market factors between advertisers—such as brand awareness, market penetration, and purchase cycles—and the potential impact of these differences on the advertising response for intent and its relationship with frequency of exposure, all analysis involving action intent was stratified by the advertiser vertical.

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4 The remaining 13% of campaigns ran in Australia, Canada, Germany, France and Saudi Arabia

Key Findings

1. Weekly frequency of Snap Ad exposure impacts ad breakthrough

Before an ad can drive some form of positive behavior change—the goal of any ad campaign—it must be noticed first. We found that frequency of exposure affected lift in ad breakthrough, (Figure 1), with sharp and steady increases in lift with increasing exposures, up to around a frequency of 2 a week, after which only modest gains in lift were observed.

Figure 1. Estimated lift in ad breakthrough by frequency; all verticals and campaigns, 1-12 weeks
2. A lower weekly frequency is sufficient for longer campaigns

To understand the impact of campaign length on the relationship between frequency and ad breakthrough, we examined campaigns that were of 1-4 weeks in length against those of 5-12 weeks (Figure 2). Although we observed a positive relationship between the weekly frequency and lift in breakthrough for both short and long campaigns, we found the rate of increase in lift plateaued at different levels.

We visualized these relationships using the % of total potential lift estimate to better understand relative gains in lift from increasing weekly frequency (Figure 3). Assuming that lift in breakthrough is maximized at a frequency of 4 a week (the maximum considered here), and the relationship between frequency and lift is as shown in Figure 2, we can instead calculate the % of the total potential lift that might be realized at different weekly frequency levels.

We observed shorter campaigns (running for 1-4 weeks) benefiting more from a higher frequency per week than longer campaigns (5-12 weeks); for longer campaigns 75% of the estimated total campaign impact in ad breakthrough was achieved with a frequency of ~1 a week, whereas shorter campaigns needed a higher frequency of ~2 a week to attain the same level of campaign impact.

This result is what we might expect, given longer campaigns have more time to build up frequency. Although we saw no difference in the vertical mix between these two groups of campaigns, the campaigns in the longer campaigns were for more established brands and products, partly explaining the use of longer, “always-on” type media activations.

To lessen the influence of various factors related to campaign length and minimize the spread of campaign lengths between studies, we focused exploration of the frequency relationship by advertiser vertical on the set of short campaigns only.

### Key Findings

6 $\chi^2$ test for differences p-value $>0.7$

7 Median baseline brand awareness was significantly larger for longer campaigns (Median 77% vs 59%; Wilcoxon test p-value $<0.10$)

8 Interquartile range for short campaigns was 1.4 weeks vs 3.2 weeks for longer campaigns
Key Findings

3. The frequency required for driving ad breakthrough was similar by vertical

We used advertiser vertical as a proxy to explore the impact of market factors on the relationship between frequency and brand lift, focusing our analysis on 29 campaigns in the CPG and entertainment verticals (53% of the total shorter duration campaigns).

The 13 entertainment campaigns were made up of predominantly streaming and gaming brands, and the 16 CPG campaigns were predominantly from health and beauty or food and beverage brands; the baseline awareness of the brands in the CPG campaigns was considerably higher than of those in the entertainment campaigns9.

Figure 4 shows both the estimated lift and the total cumulative lift in ad breakthrough, by vertical. Although the average lift was higher for entertainment than CPG, the relationship between frequency of exposure and lift in ad breakthrough was similar (Figure 4a).

We found that on average, a frequency of ~2 per week was able to drive 75% of the total potential lift in ad breakthrough for both CPG and entertainment campaigns (Figure 4b). This suggests that the relationship between frequency and lift in breakthrough might not be related to market factors, as far as can be explained by the differences in the verticals examined in this sub-analysis.

9For the 25/29 studies where brand awareness was also measured, brand awareness was 59% in control for CPG vs. 15% for entertainment verticals; Wilcoxon test p-value <0.01
Key Findings

4. The frequency required for driving intent differs by vertical

Action Intent

In contrast to this, the relationship between the weekly frequency of Snap Ads exposure and subsequent lift in action intent was found to be substantially different between these CPG and entertainment campaigns (Figure 5).

We found the lift in action intent to increase sharply with weekly frequency for entertainment campaigns up to ~2 per week, but for CPG we did not observe the same level of marginal increases in lift until after a frequency of ~1 a week (Figure 5a). In fact, for these short campaigns of 1-4 weeks’ duration, whereas 75% of the total potential lift in intent for entertainment campaigns was achieved with a frequency of ~2 a week, CPG campaigns required a higher frequency of ~3 a week (Figure 5b).

The results for these shorter duration campaigns show that with a frequency threshold of, say, 1 a week, the lift in intent was only ~10% of the total potential campaign lift for CPG, and ~30% for entertainment; in this situation, advertisers could achieve a potential incremental 30-60% of campaign lift by planning for a higher frequency instead.

Figure 5. a) Estimated lift, and b) total cumulative lift (%) in action intent, by advertiser vertical
In this paper, we were able to confirm the importance of frequency in driving ad breakthrough ("recognition") and intent ("decision") for Snap Ads in Stories.
Summary

We showed the relevance of applying traditional principles of campaign frequency planning to this relatively new ad format, namely setting frequency levels with consideration of some of the oft-considered market, message and media factors.\(^{10,11}\) (Figure 6).

The brands and products for the entertainment and CPG campaigns examined here sit on somewhat opposite sides of many market factors. Stratifying our analysis by CPG and entertainment campaigns provided a useful proxy for understanding the impact of certain market factors on the relationship between frequency and subsequent brand lift.

For CPG advertisers, their products are generally less differentiated, have shorter purchase cycles and are subject to more competition (due to high market saturation and low consumer switching costs) than those in entertainment. Finding a difference between these advertisers in frequency required for intent and not breakthrough suggests market factors are an important consideration for driving behavior change, particularly where the campaign’s goal is "persuasion" over recognition.

Nevertheless, we did find that traditional media factors were important in frequency planning for driving ad breakthrough, with longer campaigns requiring less exposures per week than shorter campaigns.

Based on the data shown here, for longer campaigns where recency may be a key consideration, a cap of ≥1 a week would be a sensible starting point for planning frequency to drive ad breakthrough. Although further research is required to determine how campaign duration impacts frequency needed to drive intent, the data suggest that for campaigns in entertainment, leveraging the same cap of ≥1 a week might be sufficient, while something closer to ≥2 a week might be required for CPG.

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**Figure 6. An Example of the Factors to Consider in Effective Frequency Planning**

<table>
<thead>
<tr>
<th>Market factors</th>
<th>Message factors</th>
<th>Media factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low brand loyalty</td>
<td>High message complexity</td>
<td>Many media vehicles</td>
</tr>
<tr>
<td>Short purchase cycle</td>
<td>Low message uniqueness</td>
<td>Low audience attentiveness</td>
</tr>
<tr>
<td>Frequent usage</td>
<td>Small advertising unit</td>
<td>Pulse scheduling</td>
</tr>
<tr>
<td>Higher frequency required</td>
<td>Low message complexity</td>
<td>Few media vehicles</td>
</tr>
<tr>
<td>High brand loyalty</td>
<td>High message uniqueness</td>
<td>High audience attentiveness</td>
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<tr>
<td>Long purchase cycle</td>
<td>Full screen advertising unit</td>
<td>Continuous scheduling</td>
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<tr>
<td>Lower frequency required</td>
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<td></td>
</tr>
<tr>
<td>Less frequent usage</td>
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</tbody>
</table>

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Summary

The results shown here show strong support for a difference in the underlying frequency relationship between CPG and entertainment campaigns (Figure 5b.), but we were limited by the available sample size here (reflected in the width of the prediction intervals around the trend estimates). Neither was it possible to explore the frequency relationship for other verticals or for longer campaign lengths.

In practice, marketers should consider a multitude of factors to determine the appropriate frequency levels for their marketing campaign, including consideration of the broader media mix of the campaign (see Figure 6 for sample factors). We were only able to examine a few of these factors and would advocate brand advertisers either use these results to set their initial frequency caps, updating their caps up or down based on their relevant market, message and media factors, or to test these or other assertions for their individual brand and product through controlled tests.

Some brand marketers may be tempted to plan their media campaigns with similar frequency levels in mind, whether the objective is driving awareness or short term sales, for example. However, this may not always be the case. As shown here for the subset of CPG campaigns considered, it’s fair to assume the frequency requirements for these two goals will be different, with awareness outcomes requiring a generally lower level of frequency than those shifting brand preference or sales intent.

The results here show that while possible to drive some degree of total brand impact with relatively low levels of weekly frequency, advertisers might be sacrificing significant levels of potential campaign lift by doing so.

The set of mass marketing tools available to advertisers has changed over the past few decades; the relevance of foundational planning principles hasn’t. These data show the value of frequency planning on a relatively new digital advertising format like Snap Ads in Stories, including the need to consider the characteristics of the advertiser and the campaign when setting the required level of ad exposure.
The data presented here should help advertisers better understand the trade-offs between reach and frequency and better plan and buy campaigns with these trade-offs in mind.