



**PLANNING AND IMPROVING MEDIA
CAMPAIGNS BY USING
STATISTICAL MODELS**



ANALYTICS 2.0

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The average CTR% in different banner formats

One of the main difficulties when planning an online marketing campaign is defining the media plan that fit best our specific target market, generating the highest conversion level.

That is why the attention is focused mainly to each media audience (quantity of audience and their profile) and secondly to the media mix (audience overlapping).



The main difficulties when generating a media plan is selecting the media mix that generates the most effective results.

The message (copyright) and creativity are also important aspects to consider when planning your campaign.

However companies dedicate lot of efforts – and analysis – to the ad formats even when that is constrained by the media availability. As demonstrated in the following analysis, the ad format could generate a huge impact in the campaign results.

Analyzed Campaigns



The analysis was carried on over branding campaigns.

We have analyzed 4 media campaigns carried on in Mexico during the last quarter of 2007 for an important international company.

The main focus of the above mentioned campaigns was generating **branding** through making users interact with ad-hoc generated websites. A **specific creative** was launched for each specific campaign that remains **without changes** until the end of the campaign.

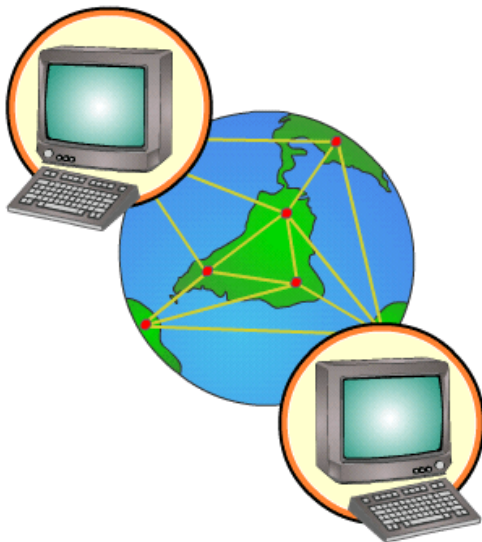
In our analysis we considered **CTR%** as the main variable for measuring the level of response from each specific format; the applied methodology in this analysis was **Average Comparison**.

Methodology

Our analysis was based on the first month series from each campaign placements. In order to identify the maximums, minimums and the **average performance rate**, we considered the daily achieved CTR% from each placement.



When the same format is used in several campaigns and in different channels, the overall CTR% from each format is calculated in an average base.



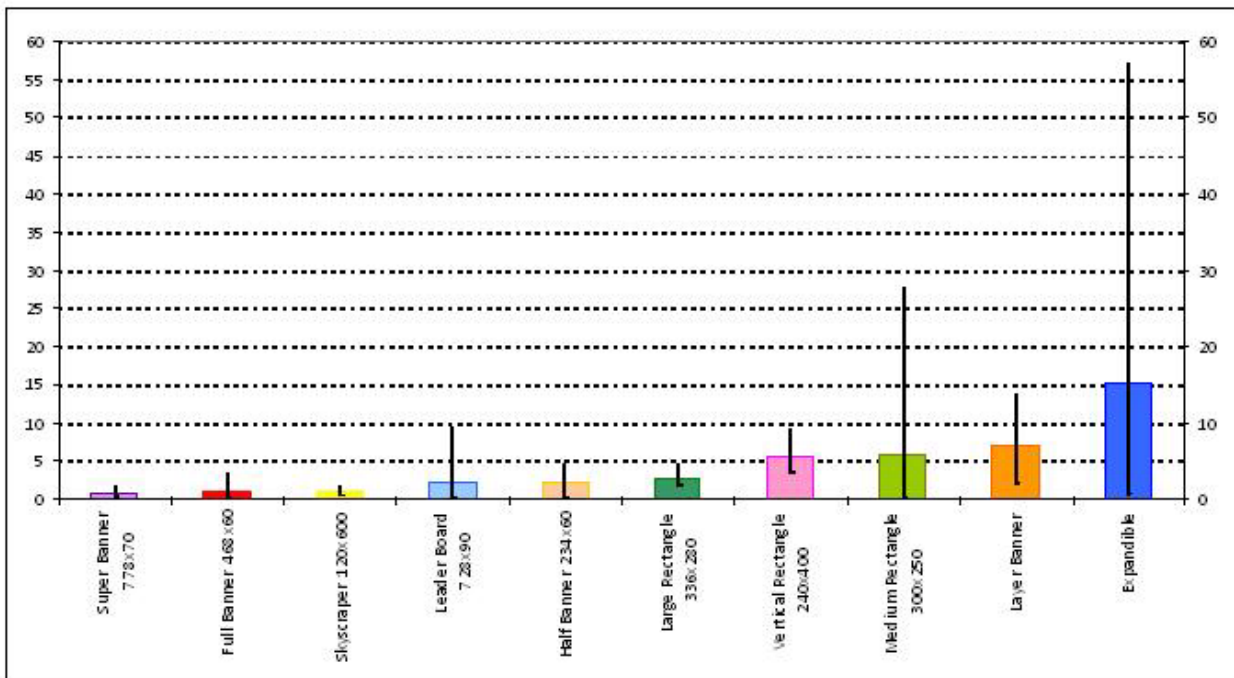
In order to standardize the results, we set the **Full Banner 468x60** format as the base format (since it is one most used format) and its CTR% is 1X.

| <i>Formatos</i> | <i>Media</i> | <i>Mínimo</i> | <i>Máximo</i> | <i>Desvio St</i> | <i>LI 95%</i> | <i>LS 95%</i> |
|----------------------------|---------------|---------------|----------------|------------------|---------------|---------------|
| Super Banner 778x70 | 0,76 X | 0,00 X | 4,24 X | 0,07 X | 0,63 X | 0,89 X |
| Full Banner 468x60 | 1,00 X | 0,00 X | 3,64 X | 0,16 X | 0,68 X | 1,32 X |
| Skyscraper 120x600 | 1,18 X | 0,00 X | 3,01 X | 0,08 X | 1,01 X | 1,35 X |
| Half Banner 234x60 | 2,24 X | 0,00 X | 5,10 X | 0,10 X | 2,04 X | 2,43 X |
| Leader Board 728x90 | 2,34 X | 0,00 X | 16,89 X | 0,11 X | 2,12 X | 2,57 X |
| Large Rectangle 336x280 | 2,98 X | 1,82 X | 5,08 X | 0,14 X | 2,69 X | 3,27 X |
| Vertical Rectangle 240x400 | 5,54 X | 0,00 X | 11,13 X | 0,12 X | 5,30 X | 5,78 X |
| Layer Banner | 6,88 X | 0,00 X | 21,24 X | 0,43 X | 6,03 X | 7,74 X |
| Medium Rectangle 300x250 | 7,05 X | 0,00 X | 45,49 X | 0,29 X | 6,47 X | 7,62 X |
| Expandible | 13,81 X | 0,00 X | 61,69 X | 1,42 X | 11,01 X | 16,61 X |
| Total | 5,23 X | 0,00 X | 61,69 X | 0,16 X | 4,91 X | 5,55 X |

Those formats with a lower than 1X CTR% achieved a response rate lower than the one achieved by the **Full Banner 468x60**, while those with higher values achieved the highest results.

As we can clearly face on the following chart, Rich Media Banner formats (Layer and Expandable), achieved a response rate considerably higher than the majority of traditional formats, while the Full Banner 468x60 achieved one of the less encouraging results.

In the following chart, the colored bars represent each format CTR%, while the black lines are the minimum and maximum registered values through all the campaigns.



However, the mapping and purely exploratory data presented might lead us to make incorrect assumptions, and is to avoid this kind of mistakes that should be used rigorous statistical analysis that allows meaningful conclusions about the results.

With the above mentioned intention in mind we focused on the ANOVA model, which is a statistical technique that is based on Variance Analysis (results dispersion from the average) over the different formats under analysis.

The ANOVA model

The basic assumption is that in case that averages (in our case the average CTR%) of different formats are roughly equivalent would be clear that the format of the various banners do not influence the achieved response rate.

$$SS_{\text{total}} = \sum_{i=1}^a \sum_{j=1}^{n_i} \sum_{k=1}^t Y_{ijk}^2 - Nt\bar{y}^2_{...}$$

$$SS_{\text{treat}} = t \sum_{i=1}^a n_i \bar{y}_{i..}^2 - Nt\bar{y}^2_{...}$$

$$SS_{\text{error(a)}} = t \sum_{i=1}^a \sum_{j=1}^{n_i} \bar{y}_{ij.}^2 - t \sum_{i=1}^a n_i \bar{y}_{i..}^2$$

$$SS_{\text{time}} = N \sum_{k=1}^t \bar{y}_{..k}^2 - Nt\bar{y}^2_{...}$$

$$SS_{\text{treat x time}} = \sum_{i=1}^a \sum_{k=1}^t n_i \bar{y}_{i.k}^2 - Nt\bar{y}^2_{...} - SS_{\text{treat}} - SS_{\text{time}}$$

The applied statistical model is particularly useful when we have different Variance in each particular analyzed group (an smaller or bigger variability in each format CTR%) and performs the comparison between one format and the rest in order to establish if important differences appear among the analyzed groups.

| Modelo ANOVA | | | | | |
|----------------------------|------------------------------|----------------------------|--------------------|--------|--------|
| Variable dependiente: CTR% | | | Test: C de Dunnett | | |
| (1) Formato | (2) Formato | Diferencia de medias (1-2) | Desvio St. | LI 95% | LS 95% |
| Full Banner 468x60 | Super Banner 778x70 | 0,2 X | 0,17 X | -0,3 X | 0,8 X |
| | Skyscraper 120x600 | -0,2 X | 0,18 X | -0,8 X | 0,4 X |
| | Half Banner 234x60 * | -1,2 X | 0,18 X | -1,9 X | -0,6 X |
| | Leader Board 728x90 * | -1,3 X | 0,19 X | -2 X | -0,7 X |
| | Large Rectangle 336x280 * | -2,0 X | 0,21 X | -2,7 X | -1,3 X |
| | Vertical Rectangle 240x400 * | -4,5 X | 0,20 X | -5,2 X | -3,9 X |
| | Layer Banner * | -5,9 X | 0,46 X | -7,4 X | -4,4 X |
| | Medium Rectangle 300x250 * | -6,0 X | 0,33 X | -7,1 X | -4,9 X |
| Expandible * | -12,8 X | 1,42 X | -17,4 X | -8,2 X | |

* La diferencia entre las medias es significativa al nivel .05.

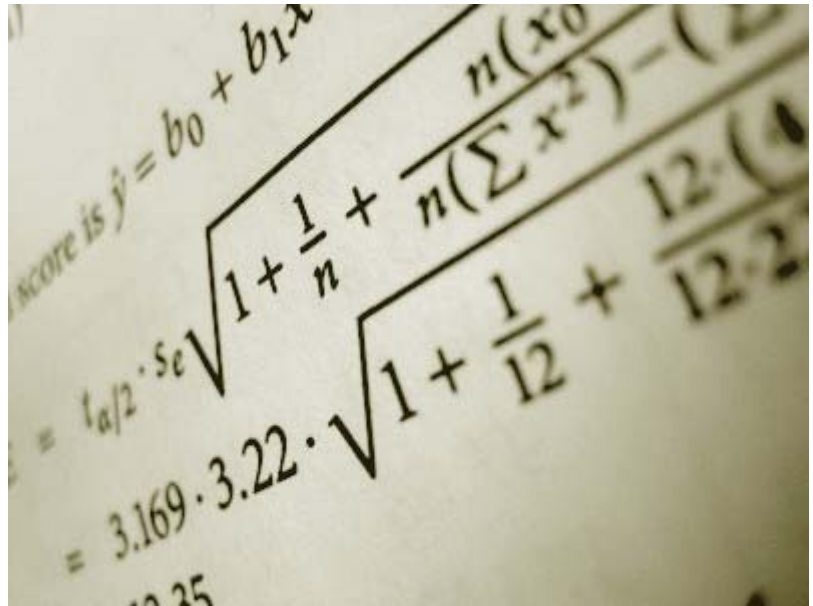


As we can see in the above table it does exist important differences between the the **Full Banner 468x60** and the other formats' CTR% (excepting the **Super Banner** and the **Skyscraper** with a similar CTR%).

The data interpretation is relatively simple: the "Average Differences" column compares the **Full Banner 468x60** average CTR% against each other format's CTR%, where the positive values determines that the **Full Banner 468x60** has a better performance than the rest and vice versa; while the important differences, statistically talking, are represented by an asterisk.



Considering that we standardized the CTR% value using as a base the Full Banner 468x60, the magnitude (absolute value) of the differences allow us understanding why the average CTR% from the Full Banner 468x60 is 13 times lower than the one achieved by the **Expandable** format.

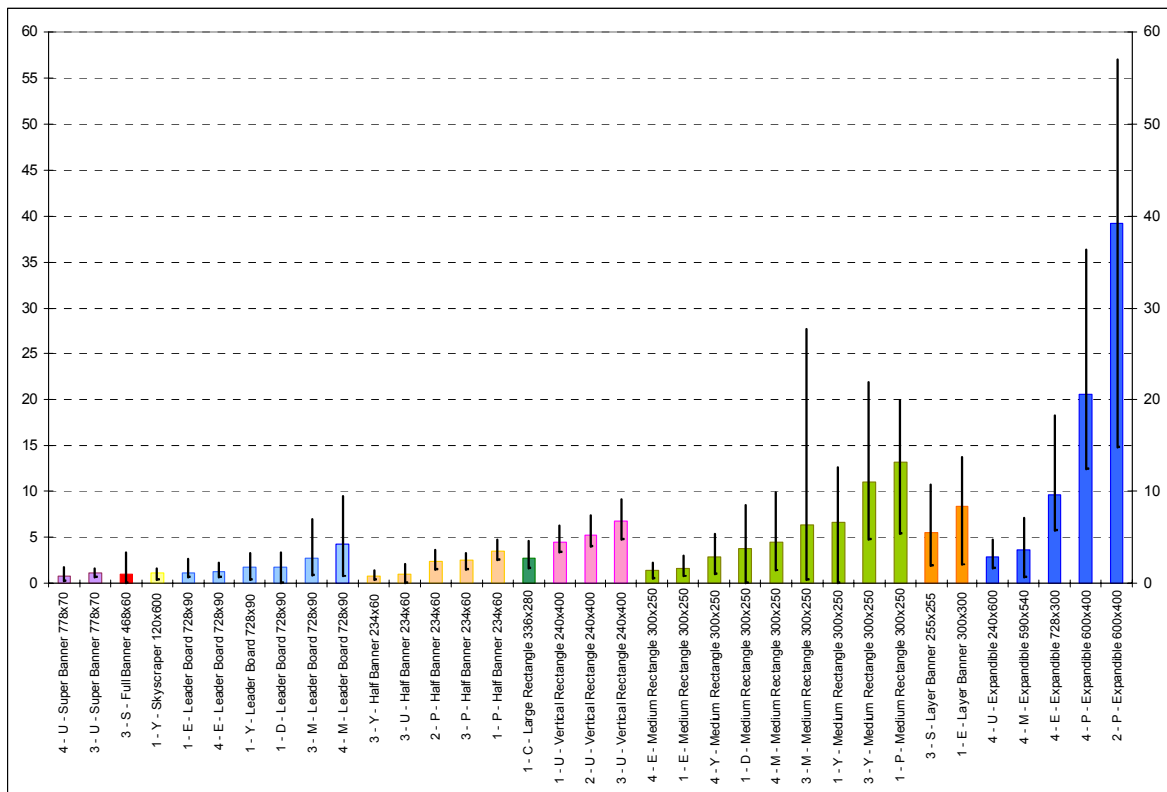


The Standard Deviation column (2nd column) determines the different levels of deviation of each CTR% against the calculated one; and columns from the superior and inferior 95% of confidence limit (3rd and 4th column) are the result of adding and subtracting to each particular format CTR% – depending on each case –the double of the standard deviation.

Findings

Based on the ANOVA model results we can conclude that in case of using non-conventional formats, like Layer Banners and Expandable we may expect a considerable higher CTR% than using conventional formats like *Full Banner*, *Super Banner* or *Skyscraper*.

As demonstrated in the following chart, the higher achieved CTR% corresponds to non-conventional formats, no matter the campaign (1 to 4) or the channel (different portals).



It is important to mention that the analyzed information corresponds to **the first month of campaign** in each placement, so we could expect



a different result by carry on the same analysis with a more advanced campaign.

There are also other non-minor factors that may influence the overall results like the add **creativity** and the type of promoted product so we suggest to incorporate into the analysis as much variables as you can, so that will give you a deeper understanding of your campaigns and its potential results.