Fractional Factorial Experimental Design

Fractional factorial is a designed experiment that lets you study the effects of several factors on a certain response. In digital marketing this means that we separate out all the characteristics, or factors, of an advertisement and determine the optimal ad characteristics that have a positive effect on the performance of your digital media.

The experiment's design is fractional, meaning that we only select a subset or 'fraction' of the advertisement factor combinations. We only chose a subset because to select all factor combinations is a large incremental expense for a disproportionately small incremental value to your brand.

Our fractional factorial design intentionally selects advertisement characteristics that allow for selective isolation of factor differences compared to the whole, gaining insight from the resulting interaction variance between factor distinctions.

A/B testing is a common methodology to solving factor effectiveness problems, however, it is limited to a smaller scale and can take much longer gain insight. Fractional factorial design on the other hand, applies its testing across a larger, more relevant subset of your advertisements and corresponding characteristics, quickly providing insight on the various elements within your ads.

Fractional Factorial: *Q & A*

- Which of my advertisements perform the best?

  Fractional factorial can give us the specific characteristics of an advertisement that perform the best, and in doing so you can determine not just which ads are performing the best, but why they are doing well. In turn, your team can then optimize the ads you serve and improve revenue.

- How can I better inform the creation of ads to help grow my business?

  A full understanding of advertisement factors that drive sales is fundamental insight to further creation of advertisements. For example, if you learn that banner ads with yellow backgrounds, buy now call to actions and sales offers perform the best; then your next round of advertisements can be informed by this insight and in turn, increase your sales.

Fractional Factorial: Applications & *Benefits*

The benefits of fractional factorial are fairly straightforward. Given the results of fractional factorial, you can cut the characteristics of your ads that do not work, and invest in the building out of ad characteristics that bring your company more engagement and, in turn, more sales.

The subsequent benefits that come from informed creative optimization include improved ad engagement, intentional creative design, and potentially improved sales figures. Lastly, fractional factorial performance has a significantly larger reach and faster time to results than similar analyses, such as A/B testing.

Fractional Factorial: *Technical Overview*

Our team uses what is called revolution 3 fractional factorial experimental design. The process consists of a deliberately chosen a subset of ad factors, selected so as to take advantage of the fact that most factors are dominated largely by main effects and then lower order interactions.

What this means in laymen's terms, is that we operate under the assumption that the analysis of a single ad characteristic at a time is the most significant consideration to better understanding the performance of your advertisement.

How this looks operationally, is that we pull the full range of factors out of every one of your ads delivered in the digital marketplace. As you can see in the example below, this consists of characteristics like calls to action, background image and even price.

Our team then builds out all these characteristics into a multidimensional space in order to run a large scale comparison of the individual media factor's effectiveness. The fractional factorial statistics then performs iterative experiments to determine which factors of your ads lead to higher media performance and those that do not.

Next Steps

Our streamlined process involves a requirements gathering session for our team gain an understanding of media practices, technology capabilities and data resources. We then create the necessary data connections, and deliver our automated reporting suite. Audits of historical incrementality performance may also be available after the data connections have been made.

Contact Us

Schedule Requirements Session or Contact Us to Learn More:

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About Us

We are a team of data science professionals focused on superlative computational mathematics and advanced data product solutions. The sole intention of our work is to serve our clients with actionable insight and honest transparency using genuine scientific practices.