Fail Faster

with Multivariate Testing

Why “Continuous Improvement is Better than Delayed Perfection”

EXECUTIVE FOCUS WHITE PAPER

ektron

Fail Faster with Multivariate Testing

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Executive Summary

As the author of "Adventures of Huckleberry Finn" and "The Adventures of Tom Sawyer," Mark Twain - Samuel Langhorne Clemens - distinguished himself as perhaps the greatest American novelist in history. In addition to being a wonderful writer and satirist, Mark Twain authored a number of memorable lines, including this epigraph describing a great opportunity facing marketing organizations:

"Continuous improvement is better than delayed perfection."

One of the missions of marketing groups is to deliver engaging web experiences that motivate a visitor to take a desired action. These actions, also known as conversions, are a key business metric used to measure the success of a website. Conversions might be registrations, purchases, downloads, applications, memberships, donations, or any measurable action. On average, conversion rates hover between one to three percent. That means as much as 97 percent of a site's visitor traffic aren't taking the desired action being measured.

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The blame for poorly performing web experiences can usually be placed on the site itself. There are a number of factors that influence conversion rates including copy, layout, forms, pricing, navigation, images, offers, even button color and placement. Any one of these factors might have a significant impact on the performance of a page. While measuring the conversion rate allows a marketer to assess how well a page is performing, it provides no insight into why the page isn't performing.

Poor performance itself is a symptom of an underlying disease - a web strategy that fails to plan for continuous improvement. The ability to "fail fast" and quickly learn from that failure is one of the drivers of a high-performance marketing organization. The best way to fail fast on the web is to use multivariate testing to quickly learn what works (and what doesn't), with the goal of driving measurable business results.

This white paper discusses how the use of multivariate testing helps marketers "fail faster" in order to ultimately succeed in delivering better business results.

What is Multivariate Testing?

Put simply, multivariate testing is the process of experimenting with different combinations of factors on a web page to drive a user to take action. Multivariate testing allows marketers to test ideas with real site visitors, letting their actions determine what does, and what doesn't, work.

Today, many marketers rely solely on speculation when designing a web experience. Leveraging intuition, best practices, focus groups and usability studies are a great starting point when designing a site, but ultimately these approaches represent nothing more than an educated guess. A strategy that has worked in the past or has worked on another site might not necessarily work for your site. As the saying goes, "Hope is not a strategy." The only way to determine if something really works is to test it and analyze the results.

Before you consider using multivariate testing, you need to understand how you're measuring the success of your site.

Of course, before you consider using multivariate testing, you need to understand how you're measuring the success of your site. "Success" will depend upon your unique business goals concerning lead generation, revenue, customer satisfaction and so on. The bottom line is that if something can be measured, it can be used in a multivariate test. When it comes to measuring the potential impact multivariate testing can have on your business, the return on investment is generally easy to calculate. Most organizations will see at least double-digit increases in their conversion rates through multivariate tests.

(Current # of Conversions) * (Value per Conversion) = Current Value

(Current # of Conversions) * (Multivariate Lift) * (Value per Conversion) = Expected Value

For example, a company sees 100 conversions a day from a landing page and each conversion is worth $100.

100 * $100 = $10,000/day

Let's assume this same company runs a multivariate experiment and sees an increase of 10% in their conversion rate.

100 * 110% * $100 = $11,000/day

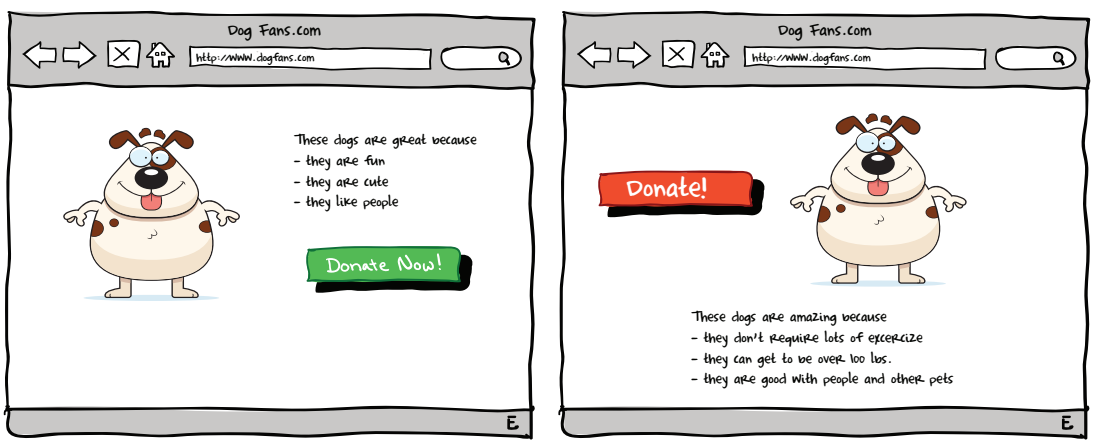
A small 10 percent increase in the conversion rate on a landing page results in a revenue increase of $1,000 per day.

Of course, this is a simple example and there is often much more complexity in calculating real-world return on investment. Yet, the benefits are undeniable.

The Difference between A|B and Multivariate Testing

A|B testing is another common approach used to optimize the performance of a website. With A|B testing, you create two versions of a page. One version serves as the "control" element, allowing you to establish a performance baseline. The other serves as the "challenger," allowing a marketer to determine if the new version demonstrates improvement in performance over the control. An A|B test is useful as a quick way to determine if one idea works better than another, and tends to work best when the challenger is drastically different from the control.

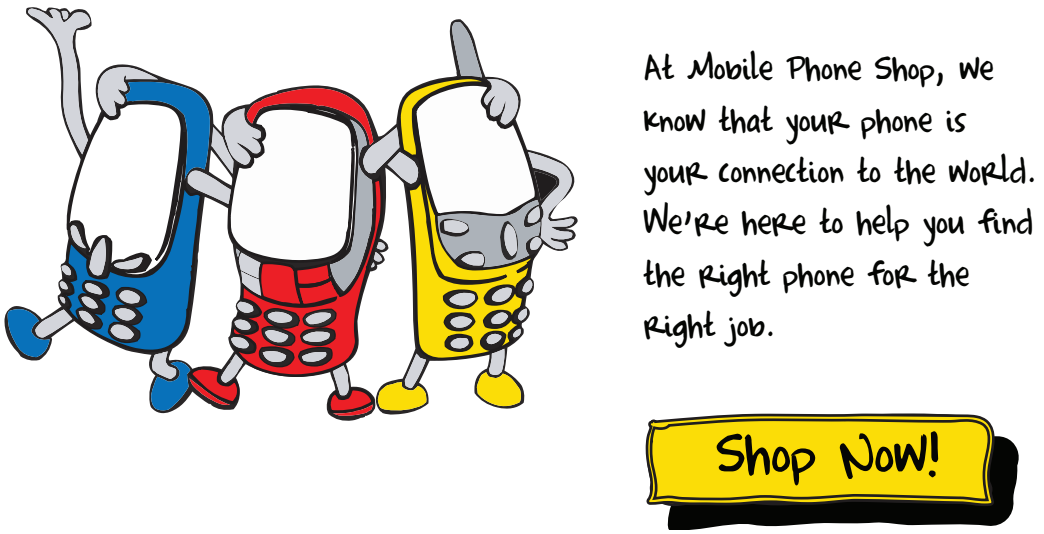
Here's a graphic example of a simple A|B test. The version on the left is the control version and the version on the right is the challenger. The challenger is testing changes to page layout, images, messaging, and call-to-action. The business goal in this example is to get site visitors to click on the "donate" button.



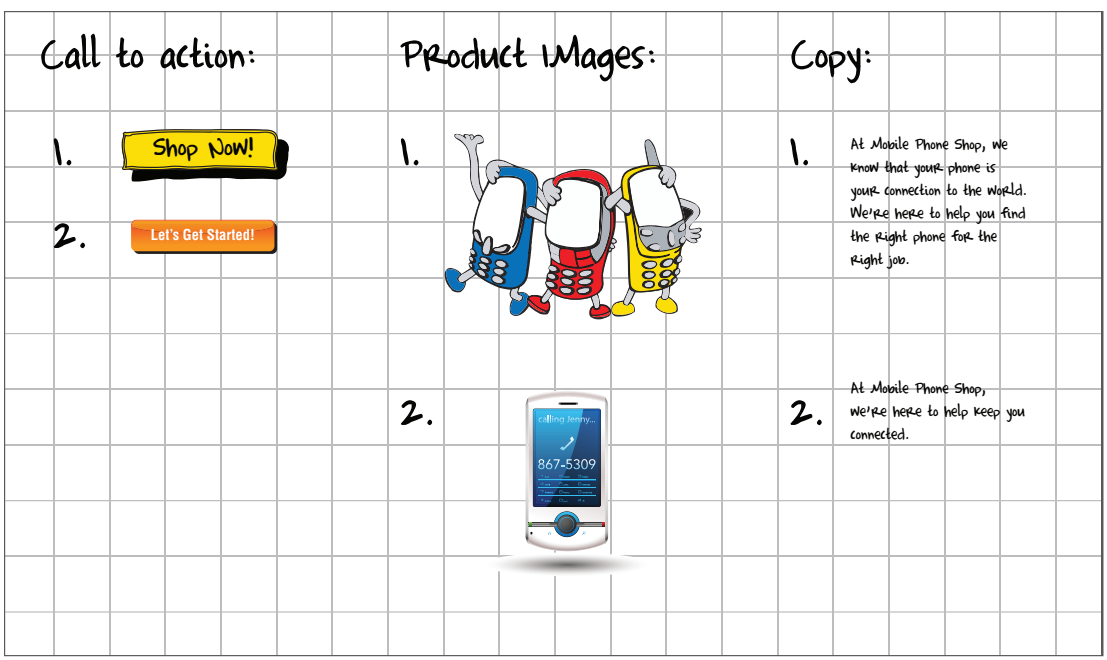
A|B tests will often deliver an improvement in the conversion rate. However, A|B tests provide little insight into why one version worked better than the other. In the example above, running the A|B will tell a marketer if the challenger performed better than the control, but it won't provide any insight into why performance improved. Was it layout? The image? The call-to-action button label? Color? The messaging?

Unlike A|B testing, multivariate testing allows marketers to learn quickly (and fail faster) by simultaneously testing all the factors on a page that might influence conversion. At the end of an experiment, the marketer will learn the impact each of the factors had on the conversion rate of the page. Let's look at an example of how multivariate testing might be used on a

landing page. Consider the following landing page for "Mobile Phones R Us" where the marketing team is measuring the number of people that click on the "Shop Now!" button.



This example experiment will test the following factors on the landing page: "Call to Action" button, product images, and copy:



This experiment will run all eight possible variations of the landing page (2x2x2) to determine which combination of page factors will deliver the best result against the goal

being measured. Here's an example of what two of the eight versions would look like to a visitor:

At the end of running the multivariate test, you'll know which of the versions performed the best (and the worst), and you'll know the impact of each of the factors in the test. Understanding the successes and failures in a particular multivariate experiment provides the insight into future test ideas.

How it Works

Multivariate testing is based on mathematical and statistical principles. Two of the more common approaches to multivariate testing are full factorial and partial factorial experiments.

A full factorial multivariate experiment runs every possible combination based on the number of factors being tested. For example, if you have 3 page factors with 3 options each you'd have 27 possible combinations to run in the test (3x3x3). A partial factorial experiment runs a subset of every possible combination using more advanced statistical models.

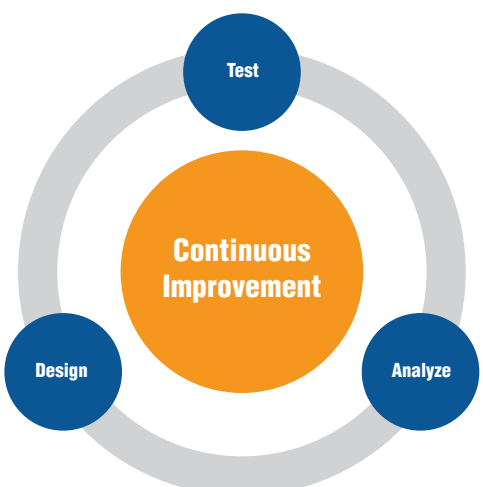
Choosing the right design for a multivariate experiment depends upon a number of factors. At a high level, a full factorial experiment typically provides better results, but the experiment takes longer to complete since it is testing significantly more versions. Ultimately the practical number of combinations you can test is determined by the amount of traffic on your site and the number of conversion events you receive. Google provides a simple calculator that will let you estimate the length of a test by providing some parameters. https://www.google.com/analytics/siteopt/siteopt/help/calculator.html.

When deciding where to test, the priority should be on high value pages that generate the greatest number of conversions. These are the pages that will provide the greatest opportunity to "fail faster" since learning can be achieved more quickly. However, tests need not be limited to pages that generate many conversions. Testing the "long tail" of pages can result in great benefits over time. When in doubt regarding a decision, it's best to simply put it into a test and let the data prove whether the decision was right or wrong.

Once a test begins, each of the defined site combinations will be delivered to site visitors. Typically, browser cookies are used to ensure that each visitor sees the same combination each time they come back to the site. The multivariate experiment is run until enough conversions have occurred to indicate one version has outperformed the others. It's important not to stop a test too early before the test results are statistically valid.

Continuous Improvement

The execution of a successful multivariate testing strategy requires that testing become part of your marketing culture, not something you do occasionally. The following chart illustrates the optimal process for incorporating testing into your Marketing DNA:



The process starts with multivariate test design. This is where the marketing team assesses the pages to test, the goals to measure, and the creative choices to use in an experiment. Once the test has been created, it should be delivered to site visitors until the desired level of statistical confidence is reached against the test goal. After the test completes, the data will demonstrate the improvement in conversion rate over control, and the insights learned from the test will help formulate a hypothesis for what to test in the future.

For example, a marketing team runs an experiment to improve the conversion rate on a lead generation page.

The winning combination demonstrates that changing the background text of the form field buttons to yellow generated a significant improvement in the conversion rate on the page. The results in turn generate a hypothesis that perhaps changing other form fields on the site to yellow might result in a similar improvement. Of course, the only way to know for sure is to place this new hypothesis into a multivariate experiment.

Incorporating a culture of continuous improvement ensures that marketing teams are continually looking for ways to improve site performance. The lessons learned from a successful or unsuccessful test should be used to formulate ideas for other things to test.

When in doubt regarding a decision, it's best to simply put it into a test and let the data prove whether the decision was right or wrong.

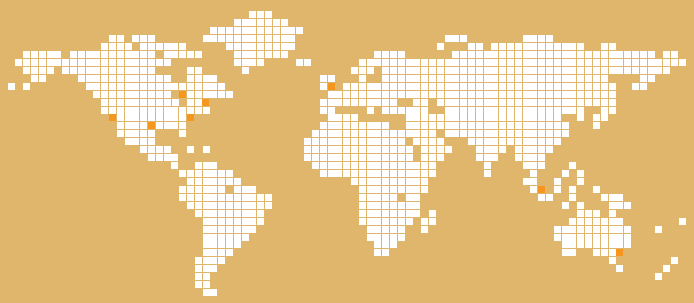
Conclusion

Multivariate testing is a proven way to deliver better performance on your website, regardless of goal. Where marketing organizations used to rely on speculation, now they can rely on the data generated by real visitors. Through the ability to test ideas, marketers are able to deliver the best possible web experience to drive the visitor to take action. If an action can be measured, it can be improved through the process of multivariate testing. The results generated through multivariate testing can be stunning, with conversions rates that double and triple. The impact of increased conversion rates on real business metrics such as revenue and customer satisfaction is undeniable.

To be effectively utilized, multivariate testing should become part of the culture of marketing. Done continuously, multivariate testing transforms the way marketers view the process of delivering web experiences. As Mark Twain said, perfection is best achieved through continuous improvement. The iterative process of designing, delivering, and analyzing multivariate experiments will lead to a culture of continuous improvement. Some experiments will deliver wild success, some will not, but "failing faster" ensures that marketing teams are able to learn and react quickly.

Notes

Notes



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