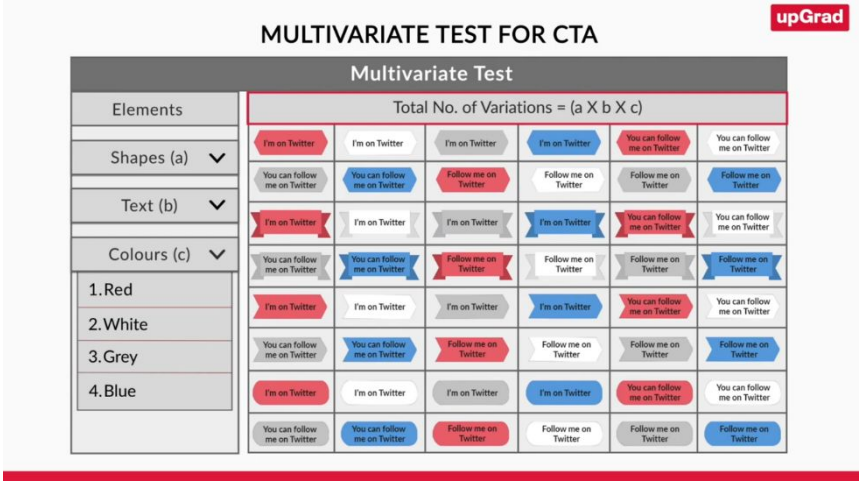
Transcription

Multivariate Testing

Hi there. In the previous session, you became familiar with AB testing, which enables you to test two different versions of the same element at a given point in time. Now, like me, you must be wondering, what if I want to test more than one element at a time? Will AB test help you do that or is there a different method to achieve that?

The scope of AB testing is limited to only one element. While a multivariate test enables you to test multiple elements at the same time. Let's look at an example to understand what you can test in a multivariate test.

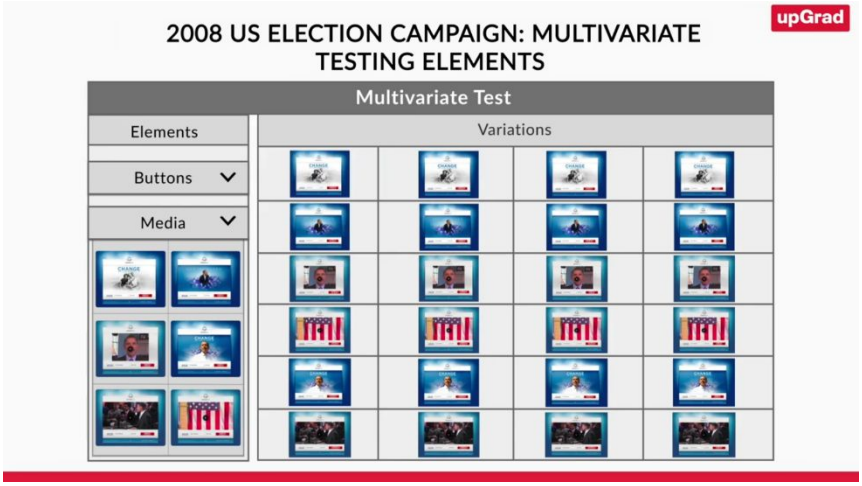


You can test various combination of shapes and text for call to actions. Here, you have four different shapes and three different line of text. This will give you 12 combinations to try. Now, if you want to test say four different colours as well as you have, you will have 48 different combinations that you can run the test on.

The total number of variation in the multivariate test would be equal to the multiple of number of different variations of different elements.

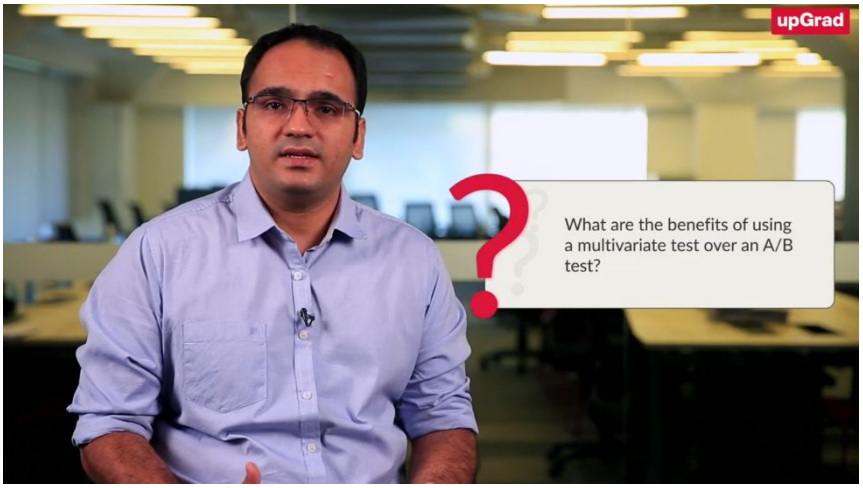
Well, if you see what the Obama campaign did during the 2008 US election, you will understand that the testing multiple variables at once is not only possible, but can also yield great results. Let's check out this campaign.

The analytics team associated with the campaign ran experiments to test out different variations of the media and the button as you can see in this image.

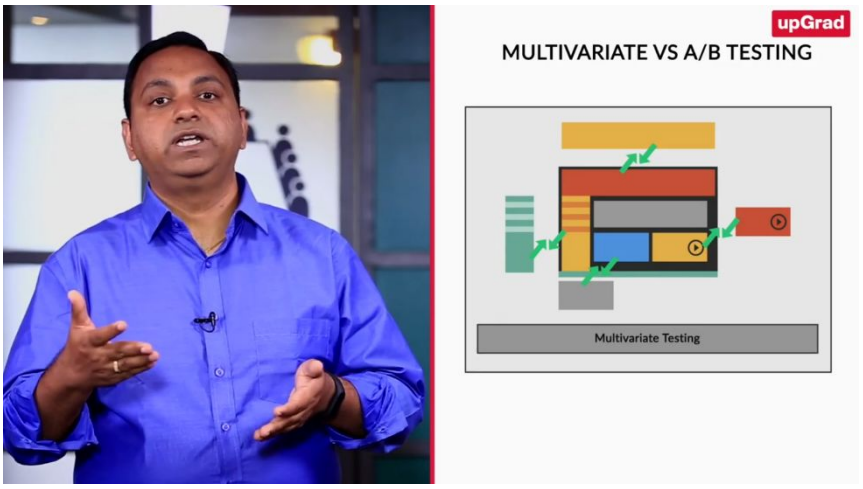


They tested four different types of buttons and six different media. The total number of combinations came out to be 24 and every visitor was shown a particular combination randomly. The matrix that was used to measure success was signup rate.

The test results favoured the family image and learn more button, while originally the campaign officials had thought of using a video and a different button altogether. Using the test results, they were able to convert a higher number of users, and hence raise more funds for the campaign.



So, a multivariate test allows you to scale up the number of elements that can be tested at the same time. This saves me the time and effort that would be required to test each element in AB testing. In that context, you saw an example from an electoral campaign run by the Obama administration. Now besides this, are there other advantages of doing a multivariate test over an AB test?



An AB test would enable you to find the answer to such question as which version of my page performs better when it comes to visitor's response, version A, or version B. On the other hand, a multivariate test would help you answer a question like, what do visitors respond better to? A webpage with a video item next to a contact form, a webpage with a contact form but no video item, or a webpage with a video item but with no contact form.

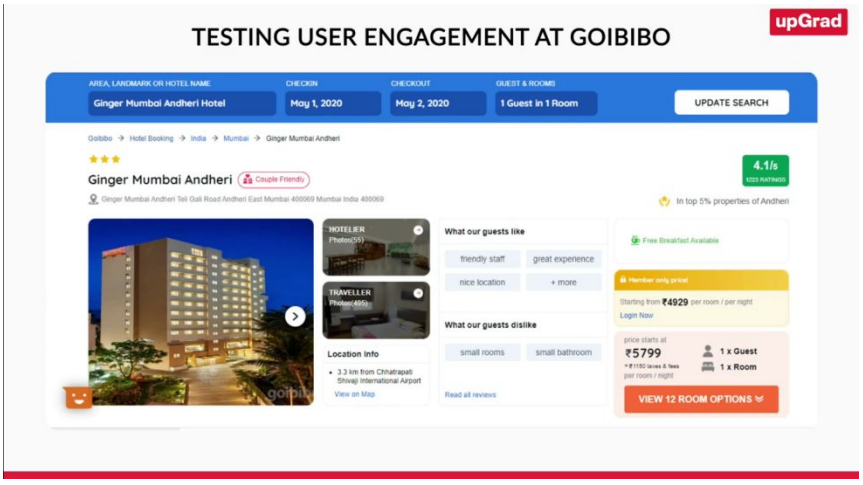
So, you see how the scope of the multivariate test is way much wider. Now the advantage of multivariate testing is that you can see the effect small changes have on your site. Although, you can also test small changes within AB test, it's not optimal as you can only test one small change at a time. Generally, you would only use AB testing for the big larger changes and multivariate testing for optimizing smaller elements.

Another advantage of using a multivariate test is that you are actually able to not only test the effect of changing one element, but also test the combined effect of a number of elements, which is also called the interaction effect.

You can answer nagging questions like, what would be the effect of changing one element if you change another element at the same time, on the same page? Would the effect be the same or would it be different? These are the questions that cannot be answered with an AB test, but you can answer them with a multivariate testing easily.

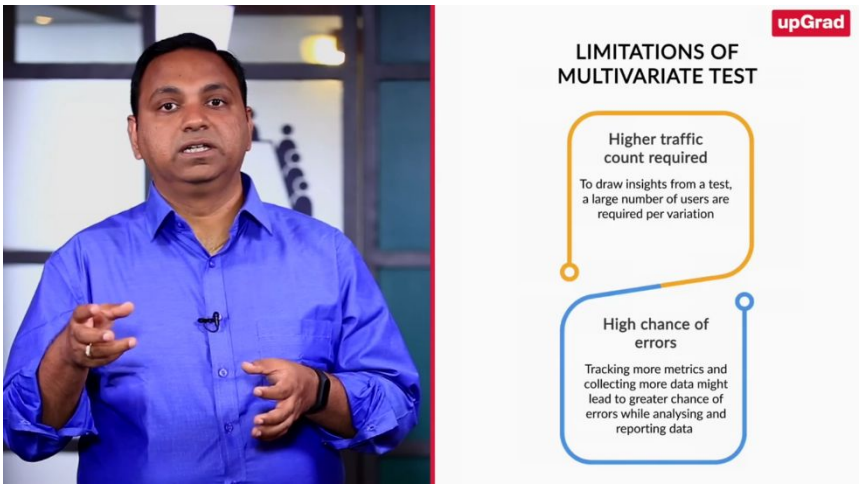
At Goibibo, one of the things which we wanted to test was how can we actually increase the discoverability of our user generated content, especially photos. And would it enable the engagement of users on our hotel details page. So, we started running various different multivariate tests of our photo gallery on a hotel details page.

We plugged in our user generated content of traveller photos in various different ways along with the hotel photos, which has been provided by the hoteliers to see what works best in our case. These photos were also linked with the user reviews.



Ultimately, we ran 24 different kinds of use cases and came out with what is currently, you know, you can refer to Goibibo.com and what you actually see on our hotel details page. That's the most optimized one and works best because in one glance it gives user ability to find out what travellers have seen as well as what hoteliers have seen. And it also helps contextualize travellers' photos with their user reviews.

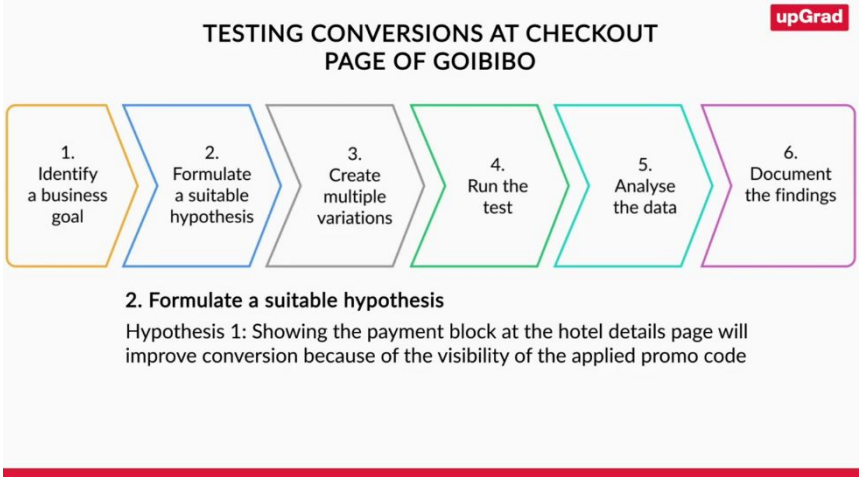
So, a multivariate test allows you to optimize small changes whereas AB test proves useful for understanding bigger changes. Also, with multivariate, it is possible to understand the correlation between changes introduced for different elements. In that context, you saw an example of Goibibo. Now let us understand the disadvantages of a multivariate test



You will need way higher traffic or a larger conversion rate for a multivariate test to be successful. To be able to draw insights from a test where you test three different variations of four different elements like text, CTA, image, you would need around hundred conversions per variation. So, the total number of conversions that you would need is around 8,100 conversions, which is a lot for many products out there.

Another limitation is that a multivariate test includes a number of different elements, which means that you would have to track more and matrices and collect more data. Hence, there is a greater chance of making an error while analysing and reporting the data.

Now you are well aware of the advantages and disadvantages of a multivariate test. With that in mind, let us further understand the steps to set up a multivariate test.



The steps to set a multivariate test is similar to what you have learned in an AB test. You have to start by identifying a business goal that you want to achieve. Once you have identified the business goal, you need to identify the hypothesis for the test.

For example, your business goal is increasing the signup of the landing page. For this, your hypothesis could be changing the image to a video and a shorter form with a different CTA will increase signups or it could be changing the text to the form and changing background image will lead to an increase in the signups.

Once the hypothesis has been formed, you could create different variations of the elements and then using a suitable tool run a multivariate test. After running the test for a particular amount of time, you would analyse the collected data and report your findings, similar to what is done in the AB testing.

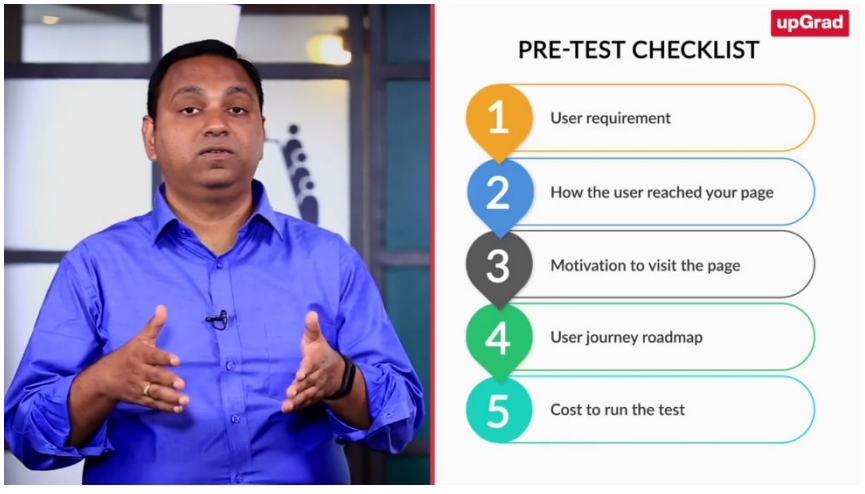
For example, one of our hypotheses on our checkout page was when we show user our booking review page, then at the same page, should we show him the payment block or not. Essentially our hypothesis was that if we will show him the payment block right at that page while he's looking at the hotel details, looking at what the promo code has been applied, the conversions will increase.

We kind of ran various different multivariates around it. We helped him fill up the booking review page, let him click on book now, let him go through the next page where the payment block was already prefilled with all his details.

Another variation was that the payment block used to open over there only, but in the closed view. There was another one in which it was completely open and he could see what all card details he had to fill over there.

We ran various different kinds of multivariate to understand our hypothesis, eventually came out to be true. And now if you will go and see our mobile web, right at the booking review page, when you click on book now, that's when a payment block comes in. It's kind of hidden, but it comes in the same flow, not at the next page.

Alright, so you saw the steps to run a multivariate test is similar to that of an AB test. The only striking difference being you can now test multiple elements as against a single element. But is there a key area which better suits the purpose of doing a multivariate test?



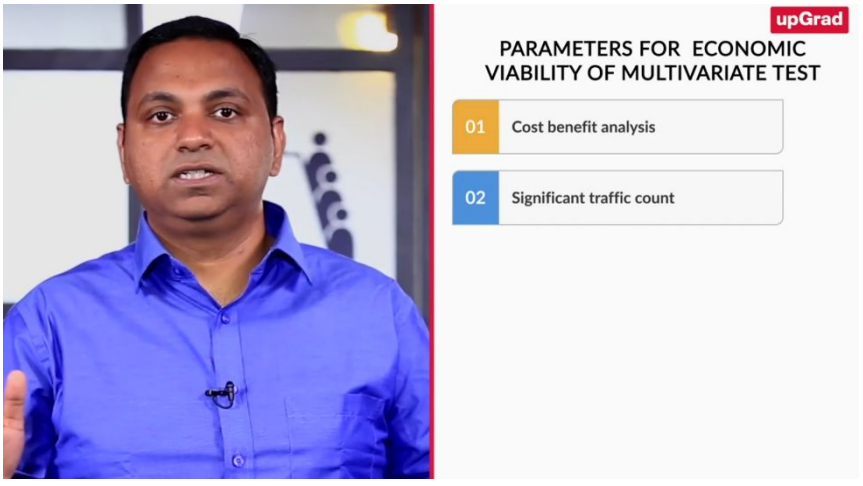
Now before you start running multivariate tests, there are a few things that need to be considered. The thing that you need to focus on is user experience. You must always and always remember that why your user use your product and what pain point they aim to solve.

A great user experience can be created by understanding the emotions of your users. And you should create your multivariate test around this. While setting up test, that focus on user experience a few questions you should ask are:

1. What does your user want?
2. How did the user get to your page?
3. Why did the user visit your page at the very first place?
4. What does the user journey look like?
5. Think about the cost involved.

Running such tests require a lot of time and resources and various tools that you would have to budget for.

So, a multivariate test is usually created to understand elements pertaining to user experience. With that in mind, let us understand the economic viability of running a multivariate test.



Variations with lower conversion rate actually lead to a loss of revenue, not to mention the fact that you would be losing out on users who would experience those variations. The best thing to do in this case is to do a clear cost benefit analysis of running such an experiment.

For example, if the cost of running, a test comes to around four lakh rupees and your target is to run five rupees for every one rupee spent, you will need to earn at least 20 lakh rupees to justify running the experiment.

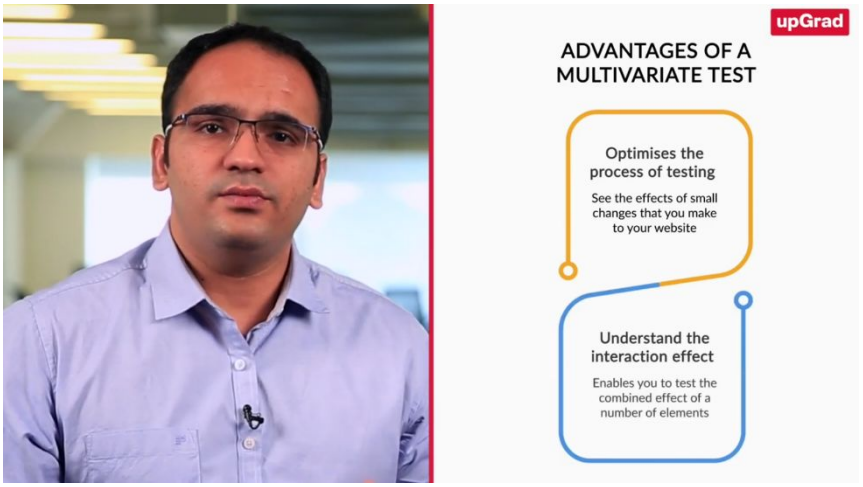
The important factor to consider is whether the amount of traffic is significant enough to run a multivariate or for that matter even a AB test. If your product does not have significant traffic, the result of the test will not be very clear.

You also need to decide if you want to conduct the test on all the visitors or only a part of the visitors. If you have a significant number of visitors, let's say 50,000, the test can be run on about 20,000 people.

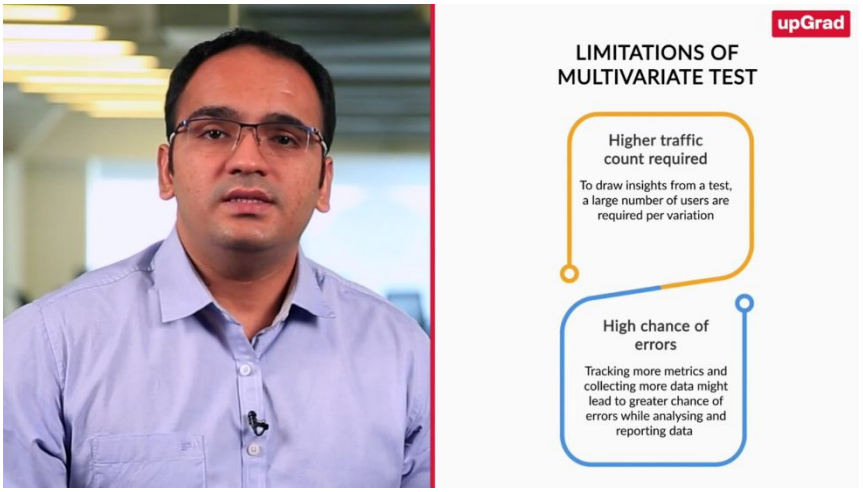
So, those are the parameters to consider the economic viability of a multivariate test, and that is all from this video. In the next one, we will do a quick recall. See you there.

So, we started this session with understanding the limitations of an AB test. To counter those limitations, you learnt a new method called the multivariate test. Now a multivariate test allows you to test more than one element at a given point in time, thus saving the effort and the time that would be otherwise required.

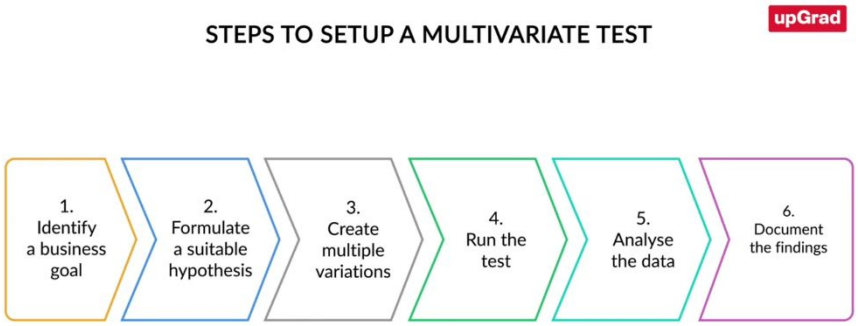
You saw an example of the multivariate test used by the Obama administration for the US elections. After this, you learned the advantages and disadvantages of the multivariate test.



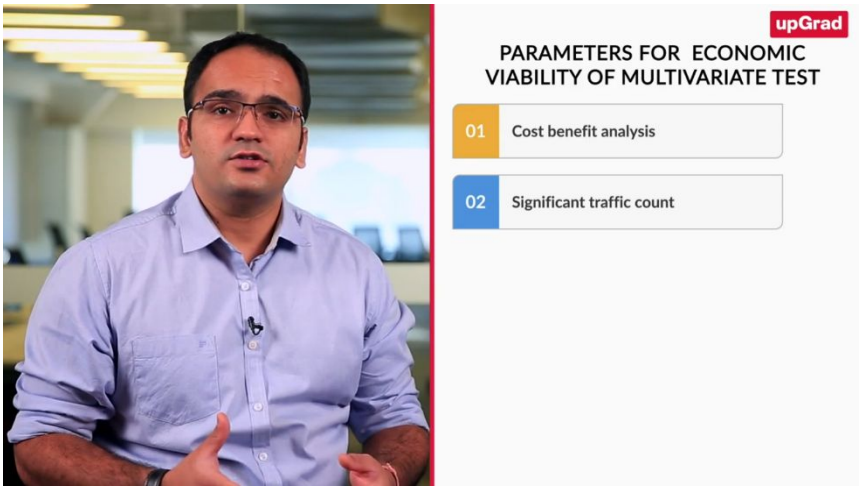
Advantages include the convenience with which you can test small changes, thus optimizing the process, and also understanding how a changing one element might affect the other element.



For a multivariate test to be successful, the number of conversions need to be large. And since, a multivariate test includes testing many elements, there is a greater chance for errors while analysing the data.



After this, you learned how the steps to perform a multivariate test are similar to that of an AB test. In that context, we became familiar with some pointers that should be considered before starting such a test.



Further, you understood the scenario in which running a multivariate test would be viable economically. You need to start by doing the cost benefit analysis and then focus on getting the required traffic for the test. That is all from this video, see you in the next session.