2. a. Experimental setup:

1. Take a considerable number of sample data (a considerable number of the sign-up form)

2. Divide the data into two. One group with the original sign-up form and another group with the changed form.

3. Distribute the sign-up form among all the people without letting the people know beforehand whether they have the original sign-up form or the changed form.

4. Finally we need to check whether the people with changed sign-up form have completed the sign-up more compared to the people with the original sign-up form.

Success Criteria:

If more people with the changed form complete the sign up compared to the people with the original form

b. The required sample size should be a considerable amount of the total population. For example, It should be at least 10% of the total population size. The population should be chosen blindfold to avoid any sort of biased in the dataset. In reality, the sample size depends on the budget.

1. How much resource/ man-power we can use
2. How much money we can spend to run the experiment

The length of the experiment is dependent on the budget of the organization. The longer experiment is costlier than the short experiment since a longer experiment needs more manpower/ man-hour.

c. As the size of the A/B test sample and the original sample is equal we can just compare the number of people who have completed their sign-ups through these channels. If we want to validate our result, we can do hypothesis testing (chi-square) on both these data samples. In hypothesis testing, we define a null hypothesis and an alternate hypothesis. If the p-value (significance value) is greater than .05 then we reject our null hypothesis and accept the alternate hypothesis.

d. The PM should also consider other scenarios. For example, whether swapping the order of the first two steps is more logical or swapping the order of the third and fourth steps is more logical. Since the A/B test require resources (Time and money). It may not be possible to do A/B for all possible combinations. Therefore, PM should choose the topic of the A/B test carefully.