Part 2 – Experiment and Metrics Design

There are several key metrics that I would be interested in to measure the success of an experiment encouraging driver partners to serve both cities:

* Increase in driver/rider acceptance-rates
* Increase in driver/ride sign-ups
* Decrease in driver/rider wait times

However, there is one metric that would fluctuate as a result of all of these: profit. Because of this, I think the most effective measure of success would be to examine the changes in overall profit as a result of encouraging driver partners to serve both cities.

In order for the drivers to be willing to serve both cities, they would need an incentive to cross over the two-way toll. Possible incentives could be: toll reimbursement for rides, additional pay goals for taking a certain number of rides in both cities, higher pay for

Budget and time permitting, an effective experiment would be an A/B study where the drivers are split between the current system and one of the new incentives. The best way, if possible, would be to get a random sampling of drivers to participate in the newer system while all other drivers remain using the current system. An amount of time for the experiment to run should be set beforehand. Along the way, we keep track of the total amount of profit (minus company costs, reimbursements, etc.) that each group brings in.

I would a 2-sample independent t-test for the difference in means to determine if there is statistically significant evidence for a difference between the average profit by driver for the new and old system. In this case, switching to the new system could be costly to do company-wide, and therefore, would like to have very strong statistical evidence to suggest it is actually produces higher overall profits. Because of this, I would insist on a very small tolerance level to minimize the chances of this happening.

Budget and time permitting, an effective experiment would be an A/B study.