Design-a-thon #1 ENAS 880 "Imaging Drugs" Oct 9, 2018 Morris/Hampson/Cosgrove

In this exercise, we ask you to marshal all the design strategies that we have talked about and read about to best demonstrate your hypotheses and formulate winning business plans.

SCENARIO

(A)

In Donald Trump's America, to protect domestic producers, tariffs have been put in place on all imported goods ... including high end BEER.

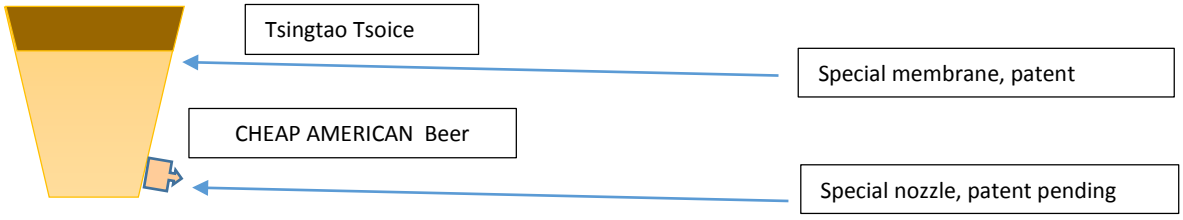
This is bad news for bars that specialize in imported beer, like The Shanghai Saloon in New Haven. The price of a bottle of popular high-end Tsingtao Tsoice from China is expected to rise to $40. But the price of (tasteless) American beer will remain low. The Tsief Executive Officer (TEO) of Shanghai Beverages and Imports Ltd. who owns the Shanghai Saloon is trying to figure out how to survive.

TEO has two HUGE ideas to keep the saloon going.

IDEA #1

The TEO calculates that if she could dilute Tsingtao Tsoice 1:10 with cheap American beer, she could keep up profits and save her business. But if she simply mixes the two, customers will find the result aversive and she'll lose her business.

She comes up with an idea: the "Tsingtao Tsoice Two-Tone" (aka the "4T").



Tasty artisanal Chinese beer on the top, cheap American beer on the bottom! The technicalities of how to do this are a trade secret!

BUT. The TEO needs venture capital to manufacture the special beer glasses with the special nozzle ... and to print new menus. Her investors are not enthusiastic. They think that people will not like the new beer. They do not believe that customers will find this new drink as **rewarding** as a full glass of Tsingtao Tsoice and the bar will lose business. The investors are unwilling to put up the money to invest in the special beer glasses.

The TEO knows a PET imager, Prof E. Mission (Prof. EM for short), at Yale. She asks him to propose a study to convince the investors that they should invest in the idea.

What scientific results does EM know about that might help the TEO sell Tsingtao Tsoice Two Tones?

IDEA #2

TEO thinks that she could further maximize profits by taking advantage of her customers' use of social media. She knows that certain customers, once they have a few drinks, will be quite likely to TWEET about the good times they are having at the Shanghai Saloon. This is free advertising! TEO tells her investors that she only needs to give away FREE drinks to the right subpopulation of her customers, she is sure they will start tweeting without reservation... and bring in lots more business. Once again, the investors are skeptical. Whenever they hear "give away free drinks" they tense up.

TEO responds that thanks to a massive internet attack on the New Haven city hall, the Russians now have the medical histories of everyone in the New Haven catchment area and are selling them on the black market. If TEO could buy this ill-gotten info, she could know which customers to target with free drinks. But it will cost more of the investors' money to buy the purloined personal data.

Once again, the investors are skeptical. They give her only $13,000. They tell her they will consider a second round of funding after she comes back with some biological evidence that either Tsingtao Tsoice Two-Tones or Targeting Tweeters could work.

TEO goes to visit Prof EM.

Prof EM at Yale is a nice guy... but not that nice. He tells his friend, TEO, that each PET scan costs $5000. There is no way he can help her for only $13,000. TEO is despondent. EM knows an fMRI imager, Lady MacHeth (Lady MH for short). He suggests that TEO talk to Lady MH because fMRI is tseaper than PET (about $500 per scan). He says, it's the "PET for people who can't afford the real thing".

What scientific results does MH know about that might help the TEO target Tweeters?

Questions for the experiments to be designed for the first and second rounds of funding:

Part A.

How should TEO use her initial $13,000 before she goes back to the investors for the big money ($1M)

What will she demonstrate?

What will it cost?

What is the design of the experiment?

What are the assumptions?

What will be calculated at the individual level?

What will be calculated at the group level?

Part B.

If the Investors like the results from Part A, they will give TEO $1,000,000.

Let's assume that the TEO scores on Part A and gets the big bucks.

What should she do with the big money to lock in the investors?

What experiment(s) should be done?

What will the calculated endpoint(s) be?

What assumptions are necessary?