QUANTIFYING TECHNOLOGY'S IMPACT ON RETAIL SALES:

AN EMPIRICAL ANALYSIS OF SHOPPER BEHAVIOR

CASE STUDY: CHARGEITSPOT

EMPIRICAL STUDIES LED BY RESEARCHERS AT:

GfK, The Wharton School, and Blue Water Measurement

META-ANALYSIS COMPILED BY:

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HYPOTHESIS

ChargeItSpot was founded on the idea that its product generates increased profits for retailers. With shoppers' phones locked and charging inside the ChargeItSpot, they are compelled to lengthen their visit so as to maximize the boost to their phone battery. Shoppers who dwell longer in store (and without their phones serving as a distraction) should also be likely to increase purchase consideration, resulting in a higher conversion rate and total spend at checkout.

However, rather than accept this intuition as fact, ChargeItSpot opted to conduct empirical research to study its product's impact on shopper behavior and assertively accept or reject this hypothesis.

STUDY OVERVIEW

Over the past four years, ChargeItSpot commissioned nine independent, empirical studies to measure how its charging kiosks impact sales in retail stores. Specifically, these studies have sought to understand if a shopper's use of a ChargeItSpot kiosk has a causal impact on their:

- Time spent in the store (DWELL)
- Likelihood of buying items (CONVERSION)
- Spend at the register (BASKET)

To determine ChargeItSpot's ROI, researchers at The Wharton School created an experimental design to isolate ChargeItSpot's impact on these KPIs. This research was executed at **nine diverse and nationally-recognized brands spanning specialty retailers, department stores, and off-price retailers (i.e. outlet stores)**. ChargeItSpot hired GfK, the 5th largest market research firm in the world, to implement the initial research study and establish best practices. To collect the data, independent auditors performed in-the-field observations of thousands of shoppers across dozens of locations.

METHODOLOGY

A simplistic approach to this research is to compare the shopping behavior and spend of ChargeItSpot users with the overall population of shoppers in a store. However, a fundamental question that this research needs to address is:

*Might shoppers who charge their phone in a store simply be **correlated** with longer dwell time and higher spend? Could these shoppers already be planning a longer and higher-spend shopping trip, and opt to use that extra time to charge their phone? If this is the case, ChargeItSpot would simply be correlated with higher dwell/spend but have no **causal effect**.*

To address this issue, the study is designed with test and control groups of identically matched populations of shoppers in retail stores. This is achieved by classifying shoppers into two groups:

TEST	CONTROL
Shoppers who charge their phones at the ChargeItSpot kiosk	Shoppers who intend to charge but cannot because all lockers are in an artificially "full" state

During the course of each multi-day study, researchers alternate between test and control states every two hours. Auditors observe these two groups to record each subject's dwell time, conversion, and purchase amount in the store.

All shoppers in the study are intercepted and interviewed upon exiting the store to confirm their initial intention for entering the store. Shoppers are asked if their primary intent for entering the store was to a) shop, or b) charge their phone. Any shopper in the control group who answered "b" is excluded from the data set so as to avoid including results from a potentially disgruntled shopper who planned to charge, but could not. The observed data from both test and control groups are then compared to determine statistical differences in shopper behavior.

RESULTS

CAUSAL IMPACT ON BEHAVIOR:

In aggregate, the data from these studies showed that **shoppers who use ChargeItSpot...**

- Dwell 2.30x longer in the store than they would have
- Convert at a 1.65x higher rate than they would have, and
- Spend 1.47x more at the register than they would have

SUMMARY OF BEHAVIOR IMPACT	
Dwell	**2.30x**
Conversion	**1.65x**
Basket Size	**1.47x**

Results are statistically significant at a 95% confidence level

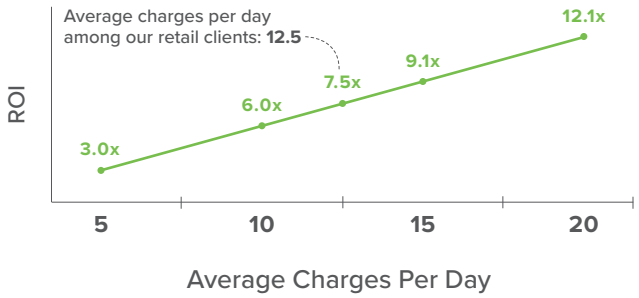
RETURN ON INVESTMENT:

Having uncovered ChargeItSpot's causal effect on shopper behavior, the researchers then analyzed the resulting impact on retailers' profits. A return on investment (ROI) can be estimated by calculating the daily spend of the test group and subtracting from it the daily spend of the control group, along with the cost of additional merchandise sold. This amount is then divided by ChargeItSpot's daily rental fee. These calculations concluded that ChargeItSpot generated an **average ROI of 7.54x for retailers.**

Actual ROI varies depending on the following inputs for any given retailer: the company's **average basket size, conversion rate, gross margin**, and **how many people charge their phone each day**. An interactive model for calculating a brand's estimated ROI is available upon request from ChargeItSpot.

As an illustration of the model, the following graph depicts ROI by charge volume for a theoretical brand with an average $63 basket, 25% conversion rate, and 50% gross margin:

DAILY CHARGES AND ROI



CONCLUSION

ChargeItSpot contributes bottom line value for its retail clients via a direct, causal impact on shopper behavior. Through repeated implementation of a rigorously-designed empirical study across diverse retail stores, independent researchers have quantified ChargeItSpot's effect on shopper behavior and the resultant ROI impact for retailers.

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