PHENS & CO. Sales Optimization Project



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**Table of Contents**

Executive Summary……………………………………………………………………………….**2**

Background and Introduction…………………………………………………………………...**2-3**

Problem Statement………………………………………………………………………………...**4**

Purpose/Motivation………………………………………………………………………………..**4**

Differentiator/Contribution………………………………………………………………………..**5**Methodology………………………………………………………………………………………**5**

Implementation & Results……………………………………………………………………....**6-7**

Conclusion……………………………………………………………………………………....**8-9**

References………………………………………………………………………………………..**10**

**Executive Summary**

We welcome you to PHENS & CO, Phens of the community since 2014! Our dynamic boutique, specializing in fashionable casual everyday wear is located on the busy 3rd Street Promenade in Santa Monica, and is a popular spot for middle-aged adults, both women and men in their early thirties through early 40’s, to shop. We sell several clothing lines including everyday wear such as tank-tops, t-shirts, sweaters, dresses, shorts, jeans, and sweatshirts, and also have a small line of business attire ranging from dressy tops, button up shirts, slacks, dress pants, jackets and blazers. After a long day of work and getting through the nightmares of LA traffic, our customers look forward to getting home and putting on something soft, comfortable, and stylish. PHENS & Co’s keys to success are implementing an effective cash flow plan, achieving efficiency, and providing our customers value for their money with a range of styles, colors and designs to choose from at an affordable price. Our company also takes pride in giving back to the community by hosting clothing swap fundraisers, fashion shows, and charity events to help support those in need. We are looking to expand our boutique in the near future to include a relaxed athleisure line to help increase profitability, attract new customers, and provide a greater selection of choices to our returning customers, who are always on the go. Our vision is to establish a one stop clothing boutique in Santa Monica- California, and expand online and in other cities throughout the USA.

**Background & Introduction**

Our clothing company PHENS & CO. was founded in 2014 in Santa Monica, California and has been steadily growing in the five years since we opened our doors. PHENS & CO. caters to all genders, and are predominantly a casual everyday clothing company, who also sells attire for business casual office wear. We specialize in selling clothes and accessories that cater comfort and style to anyone who has come home after a long day of work, is out running errands, or is planning to be out and about doing something fun with friends, significant others, or family. Whether the weather is warm or cold, wet or dry, we offer styles and items for any occasion, in hopes to make getting ready more fun and easy! Our business plan has been quite successful, as we have seen amazing growth over the years, since we have opened our doors. This growth can be directly attributed to our original online Facebook marketing campaign that was launched back in 2014, as well as the direct marketing we see from our customers to their families, coworkers and friends. Although we did not have an online store at the time of our grand opening, the Facebook campaign was able to direct people to our website so they could get a better idea of the types of items and styles we sell at our brick and mortar store. Amongst our growth in profitability, customer base, various clothing lines, and our marketing team, PHENS & Co. has been emboldened to expand by entering a new market. In addition, we are still working hard to expand our online store off the ground, and make it available to all shoppers nationwide. We launched our online shop two years ago and have been met with limited success, although we hope that a new athleisure clothing line and various new marketing campaign will bring eyes, clicks, customer conversions and smiles to our store. PHENS & CO. has prided itself on comforting people since inception, but now we want to branch out into the business world. Our plan is to add a new relaxed fit athleisure line to our store that caters to athletes and those looking to get into shape. We feel that our success with our casual wear will continue into this new clothing line, and in turn bring our company to new heights.

**Problem Statement**

The PHENS & CO. marketing team has a goal to convert 500 men and 400 women per month to our new athleisure clothing line coming out in October 2019 in stores and online, while staying within our budget and not going over the allocated $18,000 monthly budget we have set aside for our advertising and marketing campaigns.

**Purpose/Motivation**

The upper management team and employees of PHENS & CO believe that our growth and success in the casual wear and business casual markets can be applied just as successfully through the launch of a fun, comfortable, and exciting new athleisure clothing line. We will be offering a variety of items including but not limited to tank tops, sports tees, sweatshirts, running shorts, leggings, sweatpants, joggers, and tracksuits, in a variety of colors, sizes and styles. These items can easily substitute jeans and a t-shirt when you’re on the go, working out or just enjoying some down time. More importantly, we are hoping that this new launch will attract new and existing customers to our website, and increase traffic of customers online and in-store. Our aggressive approach lies in the conviction we have in our marketing team which was able to get us off to a fast start in the early days of our business. However, over the years marketing ideas, technology, and our clientele have continued to evolve, meaning we can’t rely on what worked in 2014 to hold the same effect on our sales in 2019 and future years. Our main marketing approach with this upcoming athleisure launch will be to create new and exciting marketing material through Facebook ads, in hopes that we can route new and existing shoppers and customers to our website to purchase from us. We have a set marketing budget of $18,000 per month which we cannot exceed, and a conversion goal of 500 men and 400 women per month. In other words, every month we want 500 men and 400 women to click on one of our Facebook ads, and visit our website to purchase something from either our online store or a brick and mortar location. The marketing budget was set by upper management at $18,000, which is 3% of our average monthly revenue. With an average order value of $100 per order, this new campaign should bring in 900 new customers or a total of 90k in sales.

**Differentiator/Contribution**

What is unique in our case, is that we will be going beyond the basic statistics of what the previous ad campaigns tell us. Instead of simply trying to find what campaign netted us the highest amount of customers, or what campaign had the most efficient cost per click, we are using advanced analytical techniques and linear programming to optimize our next campaign to achieve our desired results. We can use this analysis to choose a segment that we want to better serve, and use that information to find how we can direct our ads. This will be a nice step up for us in expanding our business’ online presence with a well targeted ad campaign.

**Methodology**

The head of the marketing team at PHENS & CO. believes that the best way to optimize our marketing campaign is through a goal oriented problem with our goal being to minimize our budget. This method makes the most sense because we cannot go over our marketing budget if we want PHENS & Co. to remain financially sound. We started by looking at the data from our original Facebook campaign. We first created some additional features then we focused on these columns of the dataset -Gender, Cost per Click, Cost per Conversion, Click through Rate, and Cost per Impressions. Gender is self-explanatory, and we separated our dataset into male and females because our goal was to convert 500 men and 400 women to buy from our boutique. The cost per click column tells us how much we pay Facebook every time someone clicks on our ad. Cost per conversion is the number of times someone clicked on our ad until they actually bought an item from our boutique, which is our goal. Click through rate is the ratio of people who clicked on an ad to the number of total users who looked at our website. Cost per impression is how much we pay Facebook every time they show someone the ad.

**Implementation & Results**

The first thing the PHENS & Co. marketing team did was average all of our columns and group them by gender. For females we came up with a $1.46 cost per click, 48.58 clicks per conversion, and a $0.00029 cost per impression. For men we got a $1.64 cost per click, 25.76 clicks per conversion and $0.00022 cost per impression. After some initial struggles and some unrealistic data for the click through rates, we did some research and found that a $1.91 click through rate is the average cost in retail advertising, and decided to use that value for our analysis. If we end up with a higher or lower click through rate after this campaign is complete, we can easily adjust our numbers for any future marketing campaigns.

We next began building our model using the pulp library. We stated that our problem was an underachievement/overachievement minimizing problem. Our x1 variable is the number of women who see our ad and it is categorized as an integer. Our y1 variable is the number of men who see our ad and that is categorized as an integer as well. Our x2 variable is the cost of all our ads through clicks and impressions which we categorized as continuous. Our d1\_plus variable is the number of impressions over represented to men, while our d1\_neg variable represents the number of impressions under represented to men. We labeled our d2\_plus variable as the number of impressions over represented to women while our d2\_neg variable is the number of impressions under represented to women. Lastly, d3\_plus is the over expense of our budget with the d3\_neg representing the under expense of our budget of $18,000.

After creating our objective function, we needed to form our constraints and we experimented with a few different ones before we were able to get the model to output numbers that made sense to us conceptually. The only way we could get this model to provide us with viable output and numbers, was to make two of our constraints equal to the total number of impressions needed to convert 500 men and 400 women respectively. We then created our final constraint which was the marketing budget constraint which tells our model not to allow us to go over our monthly marketing budget of $18,000. The results we got from the model confirmed that the number of impressions we need are correct, and that we actually ended up being under budget by $1,824.44.

After running this model, we decided to apply another optimization approach to our dataset by taking into consideration two different marketing campaigns we ran for our boutique.We added some additional features and calculated columns like click through rate, cost per click, return on advertising spend, total conversion, and cost per mile. Our company also wanted to look into minimizing our cost of production, subject to some constraints such as the total conversion per advertisement i.e the number of people who enquired about the product which has to be greater than 1 and less than 100, conversion costs i.e cost required per conversion which has to be greater than 2 and less than 4 per advertisement, and converted shoppers i.e approved conversion which has to be greater than 1 and less than 100. Phens & Co’s advertisements are listed under add\_id column. After optimizing the problem with the help of the solver, we noticed that Ad\_ID numbers 777105 and 781354 have the propensity of abiding by the constraints that we imposed. We also noticed that the total minimized cost per ad that our company should spend given the constraints is $2.

As a group, everyone contributed to the project in different ways with some overlap across. We all did research on what datasets we are interested in doing our project on, and then met as a group to discuss which one we felt we could build the most interesting story from with the data we were given. We created our problem statements, and Nora and Priya worked on creating the models for both scenarios, while Scott did research and was able to locate some information about real market numbers for click through rate, marketing budgets and other useful information we could apply to our problem. Elizabeth worked on creating the story and putting together the powerpoint, while Brian and the entire team collaborated on all sections of this paper.

**Conclusion**

In conclusion our marketing strategy should be successful and save PHENS & CO. $1,824.44 monthly for this spend category. We were a little surprised on the number of impressions we needed to send out in order to achieve our 500 male and 400 female conversions, but it does make sense when thinking about how many ads we ignore on a daily basis. We also realized that while our models looks successful on paper, there can still be variation when actually implemented in the real world. Whether that is a higher or lower click through rate than anticipated, or a variable “clicks per conversion” rate. We can take the information and analysis that we gathered from this marketing campaign and apply it to our future marketing strategies in order to help us continue to grow locally, online, and nationwide. This project to optimize our marketing budget has been beneficial to PHENS & Co. and will help us to continue expanding our company and our clothing lines.

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