

# Business Analysis Report for Apprentice Chef Case Study 2

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## Background:

Apprentice Chef is an innovative company offering a wide range of daily-prepared meals to busy working professionals who are eager for healthy lifestyle with gourmet foods but lack time or skills to cook. The registered users could order from its online platform or mobile app to get delivery to door. Provided preparation video, they just need do a little home-cooking which they are most likely to enjoy before having meals, and easily clean up afterwards.

To diversify the revenue stream, Apprentice Chef offers Halfway There, a cross-selling promotion for current customers to subscribe a half bottle of hard-to-find local wine delivered every Wednesday.

The management teams at Apprentice Chef would like to profile the customers who subscribe this service and promote cross-selling wine to a wider audience.

## Data Preparation:

A data set of approx. 2000 customers who purchase at least one per months for their first 11 months, or at least one per quarter but total 15 times throughout their first year.

[Apprentice Chef Dataset.xlsx](#)

[Apprentice Chef Data Dictionary.xlsx](#)

## Methodology:

- Conducting the external research to gain domain knowledge
- Exploratory data analysis and trend anomaly detection
- Performing Pearson correlation, specifically biserial point correlation given that the response variable is binomial, and testing statistical significance
- Classification modeling is appropriate forecasting technique in this case
- Insight formulation and business recommendation

## Business Insight 1:

After modeling and examining current customers dataset, I observe that people who highly follow recommendation are more likely to subscribe cross-selling wine. The pattern becomes obvious when customers are segmented into three groups. For low following recommendation group (30% below), 47% customers book for the Halfway Three; for medium range (30% to 60%), 68% customers converted to cross-selling offer; and for those in high end (60% and above), 100% of them do (Appendix I). While there are not visible differentials among consumers groups divided by the frequency of viewing product categories. Since ordering platform makes recommendation based on users' previous purchases, lookalike scores, or best seller if lacking users' data, it's imprudent to attribute recommendation system to the success of cross-selling specifically. However, the initiative recommendation engine works well on a certain group of customers who would like to get all covered without hassle in today's busy world. And it's apparently more powerful marketing tool than conventional product categories.

### **Business Insight 2**

Another nuance notice is that customers registered different email domains have varying responses to cross-selling promotion. 80% customers who provide professional emails subscribe and 69% customers with personal emails buy, while only 41% of those using junk emails do. It could be explained that large demand of complement products comes from professional personnel for time saving. Or it's also possible that professional emails are more reachable during workdays, thus increasing the chance of cross-selling success.

### **Business Insight 3**

In addition, male customers have 45% higher possibility than female to take cross-selling wine offer. The phenomenon is consistent to the general trend that men drink larger volume of wine and in more occasions than do women. They might want to have wine on Wednesday as well and don't bother to search other places. If the data about age group of customers were gathered, Apprentice Chef could determine more precisely whether men in younger group consume increasing proportion of wine. Moreover, men tend to order meal delivery much often than women, which make the former highly exposure to wine cross-selling offer, thus resulting in higher probability subscription by male without surprise. In this particular case, attending more accurate data about gender would helpful to reduce the bias of the gender composition resulted from subjective gender guess.

### **Recommendation**

In general, the majority of customers using cross-selling service are male professionals who are receptive to recommendation system. Apprentice Chef could focus on similar traits to target

broader potential customers. While it's not necessarily mean that other customers groups are not important or already consume what's they need. It would make big difference to get light users to consume complement products.

Therefore, I recommend optimizing recommendation engine to increase cross-selling revenue. There is no sign that cross-selling success contributes sufficiently to revenue. The reason could be that this specific promotion accounts for a small part of main business. One measurement could be taken to increase cross-selling wine price aligning with customers perceived value of exclusive offer. However, more relative information needs to be analyzed for further step. It's more feasible to enhance the recommendation system giving better offer to customers, meanwhile understanding customers' needs by collecting customers' response of previous recommendations. Most customers welcome for recommendation offers which make their life better and reach at right time. The technology makes it possible to attend each customers consumption pattern and personalize it. Today's customers need personal attention and are more open to an offer with personal touch. Moreover, the email is effective and low cost way to deliver simplified messengers to promote cross- selling products. Get as reliable email address from customers as possible.

#### Appendix I

##### **Followed Recommendation Rate**

Cross Selling	1 - Low	2 -Medium	3 - High	Total Customers
Not Success	476	149		625
Success	444	330	547	1321
Total Customers	920	479	547	1946

#### Reference:

Richa Sharma Vyas, P155, A Study of Customers' Perception of Cross Selling: Using A Grounded Theory Approach

Wagner A. Kamakura, P44, Cross-Selling: Offering the Right Product to the Right Customer at the Right Time

The Amazon Recommendations Secret to Selling More Online, retrieved from <http://rejoiner.com/resources/amazon-recommendations-secret-selling-online/>