

# **Hamilton Beach Juice Extractors**

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## **Executive summary**

Hamilton Beach Brands, Inc. is a leading designer, marketer and distributor of branded small electric household and specialty housewares appliances, as well as commercial products for restaurants, bars and hotels. Hamilton Beach Brands family is proud to be the home for Hamilton Beach, Hamilton Beach Professional, Hamilton Beach Commercial, Proctor Silex, Proctor Silex Commercial, CHI® garment care products, Wolf Gourmet® countertop appliances/kitchen tools and Weston (game and garden food processing products) brands.

Hamilton Beach wanted to compare their products sold to similar competitors such as Black and Decker and Breville, to see how they stacked up. Our goal was to compare Hamilton Beach Juice extractors to its top competitors and observe their ratings. Once observing the data on the ratings, we determined that Hamilton Beach was indeed one of the top competitors with their juice extractor. We wanted to provide Hamilton Beach with a suggestion on how to improve their ratings compared to their top competitors, especially Breville. The solution we propose is that Hamilton Beach should increase their online presence.

Hamilton Beach Brands, Inc. is one of the top competitors for household appliances. After cleaning and reviewing the data provided, we found that Breville and Black and Decker are Hamilton Beach's main competitors. From further reviewing the data, we can conclude that their main competitor is Breville who has more reviews for juice extractors and has a higher rating of 4.5 stars. Hamilton Beach does a pretty good job in keeping up with Black and Decker's 3.6 star rating, being about .5% higher, at a 4.1 star rating. Analysis of proportion ratings indicates that Breville has a 70.26 proportion rating followed by Hamilton Beach Brands with a 54.51 rating. The trend lines are also consistent with the findings, which illustrate that Hamilton Beach is a close competitor in ratings of their juice extractor. In addition, Hamilton Beach's juice extractor reviews are from a majority of sales from their company website. However, Breville has branched out and their reviews for most of their products come from Amazon and third-party websites. This could be a variable as to why Breville has a slightly higher rating than Hamilton Beach Brands, Inc. The idea of expanding their business on different online shopping websites such as Amazon and other third party vendors can help Hamilton Beach Brands, Inc increase their reviews and five star ratings in order to increase sales of their juice extractors.

In today's day and age, the average consumer is constantly bombarded with a plethora of advertising and thus have many options to choose from when it comes to purchasing household appliances. Therefore, the need to stand out to your customer base and give them a reason to buy your product is stronger than ever. Hamilton Beach Brands, Inc. has recognized this fact and turned to external sources to get some insight as to how they can overcome their competition. Hamilton Beach Brands, Inc. provided us with access to five years of review data from different websites. Analysis of this data, using the TOPS and CRIPS-DM approach was used to give

Hamilton Beach Brands some insight as to how they compare to their competitors and what actions they can take to improve their position in the marketplace.

The initial dataset consisted of review texts from several websites and different class tags. Yet our team has selected three sites that are relatively more rated: Amazon, Best Buy and Walmart. Our target will be the family (product category) given to the review. All of the data from these three websites are provided with unique review IDs. In the end of raw data processing, we parsed all of our raw data and generated new data to input table file. We now have 6 columns, they are: family, brand, rating, review site, review ID and review text. (As table shown below)

<i><b>Columns</b></i>	<i><b>Description</b></i>	<i><b>Examples</b></i>
Brand	Manufacturer of items	Black & Decker, Breville
Family	Product category	JUICE EXTRACTORS
Rating	Customer rating	1, 2, 3, 4, 5
Review ID	Unique review identifier	R1SEECGRBRH2SV, 24842476
Review Site	Site where the review is extracted	Amazon, Target
Review Text	Description of detailed review text	“Got pulp in all of my juices then broke a few weeks after I bought it. Wouldn't recommend.”

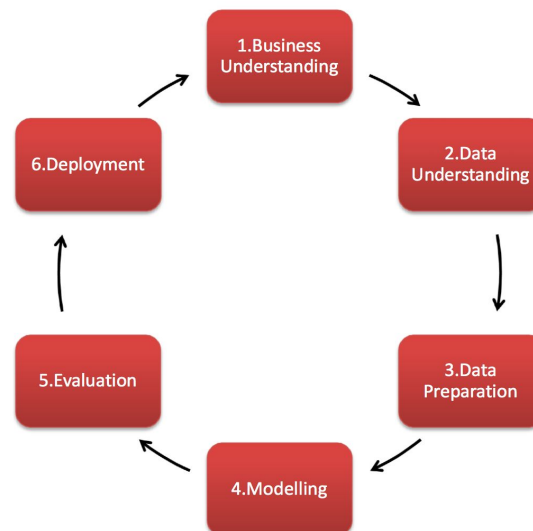
In order to implement our project, we focussed on a particular family of juice extractors that we used to sort data by Tableau Prep Builder, which is a software that changes the way conventional software processing is carried out in an enterprise. By offering a visual and immediate way of combining, shaping and cleaning data, Tableau Prep facilitates the start of

analysis by analysts and business users. (*Tableau Software*) In addition to this, we also screened out only three brands: Black & Decker, Breville and Hamilton Beach. In particular, we are using the dataset which are sold through Amazon, Best Buy and Walmart, for which there were 99.72% of total reviews for juice extractors. The raw data also includes for each review the review ID, title of the product, the date of review, SKU, rating, and the text of the review.

Some preprocessing had to be done before drawing features from the results. Initially we did iterate the 1.04 million reviews and restricted our search to the reviews with more than 5 non-repeating ratings, because the percentage "helpful" characteristic of our reviews would not be exact and a robust measure of reviews with few helpful votes. Furthermore, our search for feedback for products was limited to 5 reviews, as automatic helpfulness classification itself is not sufficient if there are not many reviews of the product that the reviews are shown for. After this preprocessing, we still had up to 24,000 ratings. For each rating, we received the review text from our raw data, and the customers' rating (rated from 5 stars). The perceived usefulness of a report is determined by the length of the review, for instance, short reviews will most likely not contain much product information. So we ruled out the reviews less than 15 characters like good, great, good juicer, etc. to make sure that all reviews remained are considered as "helpful". Furthermore, our team removes comments containing marketing terms such as discount, promotion and sale to guarantee that the remaining comments are true and effective for our research.

The TOPS (Team Operating Principles) and CRISP-DM (cross-industry process for data mining) approach were used to analyze data and obtain results. We assembled a team of four members to accomplish this project. In order to effectively approach the task, we first followed

the TOPS (Team Operating Principles). This consisted of filling out a document which essentially laid the groundwork for our team objectives and values. We all listed some information about ourselves, from basic information such as phone number and email address, down to more specific information like strengths and weaknesses. The idea of this TOPS form was for everyone in the team to get an understanding of how each person operates so that we could complete the task with minimal conflict. Once our team operating principles were squared away, we followed the CRISP-DM (cross-industry process for data mining) approach. There are six steps in the CRISP-DM process, as illustrated below:



First, in order to first get a business understanding, we researched Hamilton Beach Brands. We were initially given a powerpoint which described HBB and gave us a solid idea of what the company values and strives to provide for its customers. We then also did a bit of additional research to ensure we had a firm grasp on what Hamilton Beach Brands represent. Once our team had a solid business understanding of HBB, we then needed to get an

understanding of the data. In order to do this, we looked through the records and analyzed some of them to get an idea of the layout of the data. Our team then put the data into Tableau Prep to get a deeper understanding. We looked at all the products that had review data and we decided to analyze juice extractors. Once we decided on juice extractors, we needed to see which competitors of HBB we were going to look at. Our team decided to analyze the review data for Breville and Black and Decker's juice extractors, as they were the most prominent competitors with more juice extractors sold than any of the other brands. Once we felt that we had a strong understanding of the data, we then needed to prepare the data that was provided to us. Our team started this preparation by splitting up the data into four different files and we each checked our own data to see if any data cleaning needed to be done; luckily, there were no missing records. Due to a small data set of examining rating of juice extractors, there was minimal cleaning of data needed. This was done by eliminating duplicate information, which provided more accurate results. Once the data was prepped, we modeled it via bar charts in tableau and excel to get a visual understanding of the data. These models helped us to evaluate the results of our analysis. The final stage of the CRISP-DM method is deployment, and to make use of our findings we summarized them into this report. We intend to use this report to give Hamilton Beach Brands insight as to how they can improve their competitive position in the housewares market.

The intent of this report was to give Hamilton Beach Brands, Inc insight as to how they can improve their competitive position in the housewares market. This can be done effectively by increasing their online presence and considering marketing with highly navigated websites such as Amazon. By following these recommendations, Hamilton Beach Brands, Inc. is likely to increase their star ratings for their juice extractors as well as other household appliances.

## References

1. Data set 1-4 Excel sheet
2. “Tableau Prep Builder Upgrade Page.” *Tableau Software*,  
<https://www.tableau.com/support/prep-upgrade>.
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