**Storyline**

The client wants to invest in a bakery business. They approach a consulting firm to analyze the recent trends and patterns in the bakery business. We the business analysts at the consulting firm framed the 4 guiding questions and explored the answers which would enlighten the client with facts and figures to make a suitable decision involving their investment in the bakery business. We found the following trends and patterns to these guiding questions.

**1. Which are the states in the US that have the most number of bakeries? Does having a lot of bakeries mean that consumers in these areas will rate bakeries higher?**

We found that, of the states included in the dataset, Ontario (Canada), Arizona (USA), Nevada (USA), Quebec (Canada), and Ohio (USA) have the highest number of bakeries in that order. Interestingly, locations with the highest number of bakeries are not necessarily locations with the most highly rated bakeries on average. While Toronto, Ontario and Las Vegas, Nevada have far more bakeries than any other city with 471 and 290 bakeries, respectively, only 59% and 58% of these bakeries were rated over 4 stars. The city with the third-highest number of bakeries, however – Montreal, Quebec – did much better in this regard, with 79% of the 213 bakeries rated higher than 4 stars.

**2. Which brands in the bakery industry are most popular (busiest)?**

Among brands with more than one location, we found that Panera Bread was the most commonly occurring bakery on Yelp, followed by Fresh& Easy, Tim Hortons, Giant Eagle, and Starbucks. However, the busiest bakeries (check-ins per establishment) were led by WinCo Foods (a US national chain), followed by Chompie’s Deli (a local chain in AZ) and Sweet Addiction Cookies and Ice Cream (only 2 locations, both in NV). This indicates popularity among more local establishments.

**3. Which attributes are conducive to a bakery being more highly regarded?**

We found the availability of parking, whether garage or lot, decreased among higher-rated bakeries. While we do not have enough information to fully substantiate these claims, we suspect this might have to do with bakeries in more urban settings being more popular (urban settings being well-known for the scarcity of parking). In a possibly related discovery, wheelchair access decreases slightly among more popular bakeries, similarly indicating a lack of space.

In terms of offerings, higher rated bakeries tend to be considered “good for dessert” instead of “good for” breakfast, brunch, lunch or dinner. Higher rated bakeries are more likely to offer catering: 68% of bakeries with less than 4 stars offer catering, while 78% of 4.5-5-star bakeries offer catering. Similarly, delivery services were also valued in higher-rated bakeries: while 19% of bakeries with less than 4 stars deliver, 31% of 4.5-5-star bakeries deliver.

Lower rated bakeries are more likely to have a TV. This likely has to do with the perceived “class” of the businesses, but could also have to do with the noise level. The percent of bakeries considered “Loud” or “Average” decreased significantly among higher-rated bakeries, while the percent considered “Quiet” increased significantly among higher-rated bakeries. Consistently, being “Good for Groups” and “Taking Reservations” also decreased among higher-rated bakeries, reinforcing the idea that consumers prefer quiet bakeries. On the other hand, while most bakeries overall (94%) are considered “good for kids”, this percentage increases even more among higher-rated bakeries, at 95% of 4+ star and 96% of 4.5-5-star establishments.

Interestingly, neither the availability of free WIFI nor outdoor seating was strongly correlated with the rating success of a bakery.

**4. What products and sentiments stand out in positive customer reviews? Negative customer reviews?**

To better understand positive and negative reviews, we ran a sentiment analysis using word counts. First, we ran these analyses based on the two most bakery-populated cities.

We generated a word cloud using the reviews of all bakeries in Toronto with more than 4 stars average rating. We found the frequent word described for high score bakeries include “cake”, “macaron”, “coffee”, and “ice cream”, which we think reflect popular products at these well-regarded stores. We then generated another word cloud using the reviews of all bakeries in Las Vegas with less than 2 stars average rating. Here, frequent words include “price” and “Starbucks”. Since in all of Las Vegas there are only 6 Starbucks (in this dataset), we conclude that people must be using “Starbucks” as a point of reference for good or bad bakeries, rather than actually talking about the brand itself.

Next, we wanted to look at high- and low-rated bakeries across the entire dataset. There were more than 1,000 bakeries with an average rating of over 4 stars, thus we chose the top 10 bakeries by sorting the average rating stars from high to low. In the customers reviews for these 10 bakeries, we found out that the most frequently mentioned words are product-oriented, such as “Bundt cake”, “cupcake”, “bread” and “red velvet”. As these are reviews for the top 10 bakeries, we are reasonably confident to say that the quality and taste of the products are critical to a successful bakery because the results reflect that customers are impressed by these things. Besides this, customers also mentioned other factors such as service, ordered, people and time in these positive reviews. However, the portion, or the frequency of these factors is much lower than that of the words that describe the products. From this point, we conclude that the taste and quality of cakes is the dominating factor to a successful bakery.

Simultaneously, we also looked at the reviews of lower rated bakeries, those with less than 2 stars average rating. Unsurprisingly, the frequency of the word “cake” is also high in those reviews. However, it is quite interesting that we see much more focus on other elements in negative reviews. We see “price”, “location”, “time” appear in negative reviews almost as frequently as “cake” does. This time, cake is not the dominating factor. We assume these lower rated bakeries are poorly-received and unsuccessful; in this way, the comments are considered negative. Thus, we conclude that customers of bakeries not only care about the flavor and taste of product, but also evaluate location, service, waiting time and other factors. They complain about high price, inconvenient location of bakeries and long waiting time.

We therefore can conclude that while a successful bakery must pay heavy attention to the quality of product, it should also be careful about elements such as price and location, because potential customers also evaluate the bakery stores on these aspects.

We ran similar analyses for the 30 most popular bakeries – i.e. the 30 establishments with the most check-ins – using both the reviews and the tips. Both of these word clouds also featured words like “cupcake”, “dessert”, “coffee”, “breakfast”, and “service”, as well as many positive sentiment words like “amazing”, “well”, and “awesome”.

These findings all support the important conclusion that well-regarded bakeries must have price, location, and service all to meet a high standard, which allows customers to focus on enjoying their food while poorly-regarded bakeries are likely to leave customers preoccupied with high prices and poor service.