

# A Financial Analysis of Starbucks Baristas Mobile Ordering Strategy

Course Title: Advanced Economic Engineering Course Number: ETM 535 Instructor: Professor William Eisenhauer Term: Spring Year: 2017 Author(s): Anjana Penumarti, Alex Tacco Melendez, Bhavana Ramesh, Jake Stevens, Shreyas Vasant, Touraj Goudarznia

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# **Executive Summary**

The economic success of a company depends on the ability to identify the needs of the customers and analyze the market. In our paper, we're going to look into the best market strategies adopted by Starbucks from the beginning of its time and highlight the Mobile Order and Pay(MOP) concept adopted by the coffee giant. Starbucks is an American coffee company founded in 1971 in Seattle, Washington. The coffee chain which initially sold roasted coffee created a strong market position for itself by expanding into brewing and food sales. Through the years as the food industry is moving towards digital, Starbucks has followed the similar path which enables customers to order their beverage through their smartphone with the idea to eliminate long lines at the stores. This created an avalanche of orders and boosted the sales, however, it resulted in lines moving from the cash register to the order pick-up counter. Moreover going digital most likely would cost losing the loyal Starbucks customers due to heavy lines created by the Mobile Order Pickup.

Through this paper we attempt the following:

- 1) To evaluate the economic situation.
- 2) To propose three scenarios to overcome the operational problem.

### **1.0 Introduction**

# **1.1 Company Background**

Starbucks is an American coffee company founded in 1971 in Seattle, Washington by three students of University of San Francisco, Jerry Baldwin, Zev Siegl,Gordon Bowker. They started by selling roasted coffee only in their Seattle store. At the beginning, they purchased green coffee from Peet's and gradually popularized themselves with superior taste and quality, darkly roasted coffee. Starbucks' products evolved from 1971 and some new products are served to customers. In 1971, the only product was roasted coffee. By 1982, the coffee giant served in high-end restaurants. Later they moved onto serve a variety of hot, cold beverages and sandwiches, snacks and prepackaged food[1]. The company went public in 1992 with 140 outlets with a revenue of US\$73.5 million. The number of Starbucks stores grew rapidly right after the company became a public company.

In an announcement at 25th Starbucks annual meeting, CEO and chairman of Starbucks Howard Schultz announced the Starbucks' plans until 2025[2]. For achieving these ambitious goals Starbucks shareholders elected some of the big industry heads from all over the US which includes former President and Chief Executive Officer of Sam's Club, Executive Chairman of the LEGO Brand Group CEO of Microsoft Corporation. The timeline of initiatives to be implemented are as follows:

- 2020: Providing opportunities for 100,000 jobs for youth in the U.S.
- 2021: Creating more than 240,000 new jobs globally(68,000 in the U.S.) which means opening 12,000 new stores globally and 3400 new stores in the U.S. including 100 more Military Family Stores in the U.S. to support military communities.
- 2025: Hiring 25,000 Veterans and Military Spouses.

#### **1.2 Problem Statement**

The problem statement is a short description of the issue that is being addressed. The problem statement for our paper is as following, "Starbucks can't keep up with mobile orders, an avalanche of orders in a short period of time is creating delays and lines that scare away customers".

Launching the Mobile Order strategy, Starbucks reported a \$5.7 billion in first quarter revenue of the year 2017, a figure that marked a 7% increase in revenue. But the biggest challenge it faced is losing the loyal Starbucks customers due to heavy lines created by the Mobile Order Pickup. The company's *Mobile Order & Pay* app showed rapid customer adoption, leading to operational challenges. This tool, which was designed to reduce long queues at Starbucks restaurants, created congestion in the hand-off line due to high volumes. This resulted in walk-in customers not making a purchase due to the heavy rush, impacting comparable sales negatively. With a larger number of orders placed via the mobile app, Starbucks restaurants are unable to cope with this demand causing operational challenges. Ironically, the success of Starbucks' tool aimed to reduce longer waiting times has now created congestion at its stores, driving customers away[3]. The purpose of this paper is to describe the methodologies used to determine the right approach to the current situation. This means looking into the different scenarios that can be adopted by the company to mitigate the negative effect of the digital strategy implemented.

In the first part of the report, we reviewed the current situation and the major existing issues and problems. With market competition where all the food chains are going digital, the department wishes to open stores exclusive to Mobile order pickup.

In the second part, a sentiment analysis report using R is developed based on the mentioned current situation.

Finally, in the third part, the financial and economic analysis is done to evaluate the situation and one of the three approaches to minimize the operational problems is recommended.

#### 2.0 Literature Review

#### **2.1 Importance of Mobile Apps**

Keeping up with technology is challenging for any business let alone for food chains, and finding an exact match of research papers related to our subject of choice is a challenge as well. Being a real life problem, we want to look at papers and models that give us an insight towards the current mobile order market situation.

An article written by Sunil Gupta in 2013, explained how these mobile applications drive growth for the company and also act as a Marketing tool for the company[4]. These kinds of benefits increased sales call for every company to be present in the mobile application market.

The author also mentioned a few benefits where they add unique value to the business and in our case it will help the customer to pick coffee from the brick and mortar outlet at the click of a button. They offer incentives in the form of promotions which keeps the customer happy and makes them come back to the same brand when they think about coffee. In an article written in Forbes by Melanie Haselmayr, the apps help build brand and recognition as the author quotes "A mobile app is like a blank billboard sign. You can do what you want with it; you can make it stylish, hip, functional, shocking, or informative. But what you really want to do is create an app that has features your customers will love, while at the same time is well branded and beautifully designed."[5]

Apart from all these advantages of having a mobile app for businesses, there are a few disadvantages such as the applications crashing and not having a user friendly interface. The flow of the app should be seamless if the customer faces difficulty in hovering around the app. Merely by the bad experience created on the electronic platform it can create a negative effect towards the brand or service which will further lead to ranting by the customer on a social platform. The concept of social media economic impact is further covered in our sentiment analysis. Furthermore this calls for an extremely good technical team to continuously support the

seamless running of the application.

The number of mobile internet users is expected to go from 1.6 Billion to 3.8 Billion by 2020, which is half of the world's population[6]. This increase in the users will lead to the increase in the revenue generated from mobile apps globally from 41.1 billion dollars to 101 billion dollars by 2020. Every company wants to grab a piece in that chunk of revenue which has led to the competition in the mobile application area.[7]

#### 3.0 Market Analysis

The success of connected technology in the restaurant market is demonstrated by the growth of online and mobile ordering, mobile payments, and online loadable plastic and electronic gift cards. Online ordering is producing billions of dollars in business for chains including Pizza Hut, Domino's, and Papa John's. Mobile payments already account for a big portion of Starbuck's revenue[8].

Starbucks has a strong geographical presence in the globally and in the US with 36.7% of the market share in the US alone. Its biggest competitor in the US is Dunkin's Brand which has about 26% market share. Starbucks has gained rich brand equity and strong market position solely due to their premium product mixes and a variety of loyalty based reward programs[3].

Prior to launching the Mobile Order and Pay strategy, in the fiscal year 2015 alone revenues in North America alone grew 11% to \$13.3 billion, primarily driven by comparable store sales growth of 7%, comprised of a 4% increase in average ticket and a 3% increase in number of transactions, as well as incremental revenues from 612 net new store openings over the last 12 months. Growth in the core beverages, paired with the success of food offerings and beverage innovation, drove the increase in comparable store sales. With benefits due to investments in digital platforms related to in-store initiatives, Americas operating margin grew 80 basis points to 24.2% in fiscal 2015[3]. Starbucks expects to continue to drive revenue growth and moderate

margin expansion through new stores with the investments being made through digital initiatives.

Introduced in 2015 to help customers avoid lines, Mobile Order & Pay accounted for a revenue increase by 7% of U.S. orders at the end of Q1 2017, which went up from three percent in 2016. In two of their Seattle stores from the beginning of Q1 2017, customers receive an estimated time when their beverage will be ready and then head to a pick-up location avoiding bottlenecks[3]

Online ordering accounts for about \$12 billion in restaurants' annual revenue. As online ordering for carryout and delivery is expected to grow more than double over the next few years as more restaurants make the switch Starbucks is going through all that it can to stay in the digital market[12]. Starbucks also reports that mobile payments now account for 10% of its transactions[12]. Today, a good app and website are as essential to a restaurant as its cutlery.

#### 4.0 Sentiment Analysis

Sentiment analysis is a type of natural language processing for tracking the mood of the public about a particular product or topic. Sentiment analysis, which is also called opinion mining, involves in building a system to collect and examine opinions about the product made in blog posts, comments, reviews or tweets. [13]. Sentiment analysis otherwise known as opinion mining is a much bandied about but often misunderstood term. In essence, it is the process of determining the emotional tone behind a series of words, used to gain an understanding of the attitudes, opinions, and emotions expressed within an online mention [12].

We have tried to plug in the sentiment analysis for Starbucks mobile ordering project to track the online sentiments of people buying the Starbucks products online. This is for the company called Quantifind that analyzed 4 years data online and has identified that Starbucks has seen a major uptick in the conversations around mobile that drive sales.



#### Figure 1

Going by the graph above, we can notice that there is a positive trend with mobile sales initiative. Since the mobile app for ordering coffee was launched in 2015, we see an upward trend in sales. Hence, as the sales is happening in the virtual world of internet, it is important to identify the opinions or the sentiments of customers those are using mobile apps.

Figure 2 shows the sentiment of people using Starbucks mobile app.





At the buyer level, Over the last few months, Starbucks' customers have been 64.3% more negative than positive about sales coming from their mobile apps and this is denoted by a red line. Drilling down one level deeper, quantifind finds exactly with whom the problem is most glaring in American population most unhappy with the mobile service experience at Starbucks. The northeastern region looks most unhappy about the experience.

It shows that the customers aren't exactly excited with Starbucks' level of service around mobile. This visualization compares the top negative-sentiment terms of Starbucks customers in the Northeast (Blue) versus those in the South (Brown)[12].

In the Northeast, the upward trend of mobile use mirrors that of the general population in the first chart but the sentiment is much more starkly negative. In the northeast, over the last 3 months, Starbucks customers are 208% more negative than positive about sales coming from mobile. That is significantly above the national average of 64.3% over the same period [12].

Without delving too far into broad generalizations, we think it's fair to say that folks in the Northeast tend to be more impatient and seemingly rushed. But whatever one thinks of the regional culture, the negative sentiment problem around the app still exists, bleeding revenue from Starbucks' bottom line [12].

The important next move, then, is to understand the specifics of the complaints. Take a look at the word cloud in figure 3.



# Figure 3 [12]

The findings can be summarized as mobile app services are found to be more problematic. People seem to be complaining about process, systems and longer lines. Seeing the sentiment of Mobile ordering, we can conclude that, with a few changes in processes, better system design of apps and streamlining the ordering process by introducing alternative store suggestions, the mobile ordering initiative can bring positive economic value to Starbucks

#### **5.0 Financial Analysis**

#### 5.1 Sensitivity Analysis Approach

During the examination of the Starbucks Coffee Corporation's decision to expand its digital footprint by developing an on the go mobile order application for cellular devices, we looked at a number of different contributors to the company's financial health. With the growth of "online" orders, the line to pay for coffee was projected to decrease, thereby streamlining the process for getting that fresh cup of coffee. This, however, has not been the reaction on social media. The increase in negative feedback due to increased wait times at the coffee counter after payment, along with the increase in congestion throughout the coffee shop has turned numerous would be customers away. Has the increase in mobile orders caused an overall decrease in direct customer sales at the counter? As the mobile market continues to grow, will Starbucks continue to see shorter lines at the cash register and longer lines at the coffee counter? As of now, Starbucks has not seen a drop off in their revenue flow. As of 2016, it was estimated that 7% of the revenue for Starbucks was from mobile ordering. This number has been steadily growing by approximately 1% per quarter for the past two years. In order to evaluate the financial impact of the mobile ordering process on the total revenue stream, we utilized a steady revenue growth averaged over the past two years and extrapolated an estimation of sales from both mobile ordering and consumer products outside of the coffee products sold by Starbucks.

The estimated revenue for the 2017 fiscal year, was then analyzed using a Sensitivity Analysis. The tables for 2015, 2016 and the estimates for 2017 are presented along with the contributions from mobile sales and consumer goods [13]. In the sensitivity analysis, the in-store purchases of coffee still remain the dominant contributor to the total revenue, with consumer goods ranking second, followed by the steadily growing mobile ordering. My looking at the possible changes

to revenue created by over/under estimations for revenue contribution of each of the three factors, the sensitivity analysis allows us to project a what-if analysis. The primary analysis that will continue to develop over the fiscal calendar is the magnitude of impact that mobile sales will have on over the counter transactions. If a 1-2% increase in mobile transactions continues quarterly, this may have a more significant financial impact to the OTC transactions, where an uptick in mobile revenue will lead to a decrease in total revenue due to overcrowding at the pickup counter. The sensitivity model shows the possible financial responses for this possible scenario, where a significant 8% increase in mobile orders would project a revenue increase estimated at \$150 million dollars; however if this growth created a drop off in OTC sales at a margin as little as 5%, it would create a decrease in revenue of more than \$1.15 billion dollars.

This would not be a financially sound trade off as demonstrated in figure 4, a Tornado Chart illustrating the financial contributions of each category and the range of value provided by each category of service.



Figure 4

# **5.2 Dedicated Mobile Locations**

A proactive solution to this growing mobile ordering population would be to establish dedicated locations for mobile ordering only, where statistical data and social analysis dictate that there is a growing necessity to alleviate the congestion generated by the merger of mobile and OTC consumers. This would create a more streamline system for those on the go while allowing the

more laid back consumer to continue to enjoy the interactions with their local baristas.

#### **5.3 Expected Value Under Uncertainty**

All the information in the economic analysis of our project may have some level of uncertainty, and although we can pay less attention to the variables that we have more control over, e.g., opening new stores in downtown Portland or increasing the price of the Caffe Latte, there are other variables that represent higher uncertainty and may impact the results more significantly. Therefore, a deeper examination is required.

To determine the value of the project, we are first going to measure its uncertainty through the analysis of probability theory; probability describes the long-run relative frequency of occurrence of an event, it can be based on historical data and expert judgment to forecast future situations [14]. Then, we will determine the expected value of the project by taking into account the present worth of all possible outcomes.

Uncertainty will be measured through two sets of outcomes: the likelihood of Starbucks to address the problem, and the probability for customers to be assisted within 3 minutes of arriving at the store. We have relied on our team's professional judgment to determine probabilities for the first set of outcomes; it refers to the operational issues that the Mobile Order & Pay (MOP) app is having and how we believe Starbucks will approach the problem. Based on the company's constant innovative efforts in pursuing efficiency, we consider there is an 80% probability that they will address the issues; there is a 15% chance that they will leave things "as is", and there is only a 5% probability that the company will underutilize the app by eliminating it from the high-traffic stores that are reporting the long-line problems.

In regards to the second set of outcomes, we have established our estimates based on historical data. An investigation conducted by two students from Rutgers University [15], reported that 25% of Starbuck's customers had to wait for more than the average time (3 to 5 minutes) to receive their order at high-traffic stores. Therefore, we can safely assume that there is a 25% probability that MOP customers will have to wait for more than 3-5 minutes and a 75% chance that they will be in and out of the store in less than 3 minutes.

After defining this group of probabilities, we constructed a discrete probability distribution to calculate the project's present worth. This value depends on the *joint probability* distribution for the different possible combinations of the two sets of outcomes [14]. Creating a distribution like this gives us a more realistic view of the value of the project. To define the present worth for each outcome, we estimated the annual benefit for each scenario and calculated the net present value, we predicted a 4% annual growth rate based on the 1% increase that was reported in the last 4 quarters. We also used a MARR of 12% (S&P 500 returns up to 11% on average) and a cost of 275 million (initial MOP investment in 2015). The following table describes the results:

-				
Г		80%	15%	5%
L	0	-275	-275	-275
L	2017	1552	1403	1507
L	2018	1614	1318	1522
L	2019	1678	1239	1537
	NPV	\$3,591.75	\$2,910.28	\$3,377.87

Table 1. Net present value calculation for three possible outcomes.

To compute the project's expected value, we weighed the present worth for each outcome by its probability, and the results were summed. With an expected PW of \$3,479, this is a profitable project. Having analyzed the project under uncertainty gives us more leverage to make appropriate decisions. The following table describes the calculations:

PW	PROB.	SPEED OF SERVICE	PROB.	JOINT PROBABILITY	EXPECTED VALUE
3592	80%	< 3 Min.	75%	60.0%	2155
2910	15%	< 3 Min.	75%	11.3%	327
3378	5%	< 3 Min.	75%	3.8%	127
3592	80%	>3 Min.	25%	20.0%	718
2910	15%	> 3 Min.	25%	3.8%	109
3378	5%	>3 Min.	25%	1.3%	42
				EV(PW)	\$3,478.84

Table 2. Expected value calculation for the project.Adapted from Engineering Economic Analysis 9th edition.

The following graph illustrates how the higher probability values represent a more likely and favorable situation for Starbucks. For instance, there is a 60% chance to obtain a present worth of \$3,592 if the company addresses the operational problems and provides the customer service that people expect.



Figure 5.. Probability distribution function for Expected Value. Adapted from Engineering Economic Analysis 9<sup>th</sup> edition.

#### **6.0 Conclusions**

Following the market trend we can with no doubt conclude that alongside the rising number of smartphone-users, proximity mobile payments have tripled becoming a very popular payment method for Starbucks American consumers[13]. Secondly for the purpose of our paper, we investigated the market furthermore and found out that as of June 2017 the consensus forecast that the company will outperform the market and the share price forecast estimates a 12-month price target with a 2.87% increase from the last price of 64.16 [12]. This truly justifies our markets analysis mentioned earlier in the paper. High mobile loyalty due to Mobile Order & Pay use remains a major driver for the growth of the company. We can furthermore add to conclude that the coffee giant worked hard at developing its digital strategy, optimizing the user experience of its mobile app to reduce friction and increase traffic for those who use the app to

make purchases.

Sentiment analysis allows us to know the sentiments of online customers. it's noticed that most of the online customers (the ones who provide comments) shows that the customers are unhappy or not very excited about the coffee buying experience. This negative sentiment can damage the sales. In order to add economic value to the mobile app online sale initiative by Starbucks, Starbucks needs to take relevant actions to improve the business model to satisfy the online customers. By doing so, Starbucks will be able to hold a grip on existing customers and attract newer and time sensitive customers. Some of the recommendations could be improving the process, shorten the service timing, suggesting an alternative store for quicker pickup and improving their supply chain processes.

The sensitivity analysis allowed us to evaluate how different scenarios may impact revenue growth for in-store purchases, consumer goods, and mobile ordering. In-store sales still represent the highest contributor to total revenue, but MOP is steadily growing at a 1% rate quarterly. Furthermore, we decided to realize a more thorough analysis for the MOP segment since this is the focus of this paper. We included probabilities into the scene to attain the expected value for the project considering a risk factor. The expected value approach confirmed the sensitivity analysis results and it also showed how key issues: operational and queuing, impact the profitability of the project.

#### 7.0 Recommendations

It is important for Starbucks to maintain its loyal customer base no matter what. In order to facilitate the growing MOP contingent, who has become the scapegoat for the extended wait times and the pickup counter congestion, Starbucks must develop alternative methods for alleviating and reducing these new retail stressors.

The first recommendation would be an amendment to the current mobile application. By displaying current wait times at a user's favorite location, and then suggesting alternate locations

either nearby or along the user's normal travel paths, individuals would have the freedom to choose familiarity or efficiency when picking up their caffeinated elixir. This would provide an avenue for distributing more of the MOP population to more stores. It would also allow Starbucks to investigate the loyalty individuals may have to a particular Starbucks branch and how they could foster it in additional locations.

The second recommendation would be to open MOP dedicated locations that could be partially automated in order to maintain efficiency and continue to integrate the human-technology experience. This integration of technology into the food service industry has worked well for many companies. Since one of the reasons for Starbucks success is its product consistency, developing an automation aspect to the MOP service line is a continued step towards making the process more efficient and timely for "On the Go" users.

The final recommendation would be to higher on additional barista's at high volume locations, to provide additional volume handling capacity, while also improving the layout of store to improve patron flow throughout the process, allowing customers wishing to stay and sip their coffee on site a relaxed area to do so, while still accommodating those who are looking to get in and get out.

In order to continue growing its MOP population, while retaining the loyalty of the customer base that brought it beyond the borders of Seattle, Starbucks must develop and execute a distinct plan to address the positive and negative effects of its mobile program. Will Starbucks fail as a company if it does nothing? No. They will miss out on ability to continue to grow their coffee empire at an unprecedented rate.

# 8.0 Appendices

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