Columbia University

Industry and Market Analysis: Personalized Nutrition

Group Paper 3

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The Product

SmartCookie is a personalized nutrition tracker that integrates with food delivery apps to give users insights, goals, and recommendations related to their dietary health. The success of the idea assumes that over time, more and more food purchases will be made online. What sets it apart from other nutrition tracking apps is that SmartCookie takes data directly from the user's purchases, so the user doesn't have to enter food data manually.

SmartCookie can be used as a mobile application or web browser extension. It facilitates more well-rounded nutrition tracking targeted to the modern, health-conscious consumer that is increasingly purchasing food online. SmartCookie would then allow you to easily keep track of the nutrients of what you eat, even foods that are traditionally harder to track, such as meals from restaurants. The application automatically imports meals from whatever food delivery service you use through the extension or account linking, and deliveries may even be ordered through SmartCookie itself. There is a high level of customization– Based off of dietary needs and analysis of nutrition tracking data, it can provide recommendations to fulfill nutritional deficiencies.

Anyone can benefit from nutrition tracking technology, and its ease-of-use compared to similar software opens up the market to people who wouldn't usually put in the effort to enter their food data after every meal. Traditionally, the target customers are people who create diets to complement their fitness goals, mainly tracking calories and protein intake. SmartCookie's target customers are not only those focused on fitness but also general health, medical needs, and ethical restrictions. This is because SmartCookie provides details and summaries about the nutrients and value of the food, improving all aspects of health.

Minimum Viable Product

Our MVP would be a very simple website or app where one can enter their order and location. That info is sent to us, and we order their food for them on any delivery app, then record that data for them and create a summary of their nutrition for them, displayed on the website/app. This would test the hypothesis that 1. People value our nutritional health insights and 2. People will change their eating habits based on generated recommendations, showing they value the insights.

To measure the success of the MVP, we must have quantitative evidence supporting the result of the hypotheses. We will enlist 20 testers that fit the target customer description of young, modern, health-conscious, and technologically apt. We give them access to the MVP, assuming they will all try it at least once, then collect data on return rate, satisfaction with nutrition data when they receive it, whether the insights changed their next order or eating habits, and if they agree with the insights. These will be measured by interviewing customers after placing an order and using actual order data. If customers come back to order from the app, agree with the insights, and change their orders to match recommendations, the app would be considered successful.

Key Performance Indicators

After creating an MVP that is fully automated, allowing it to handle any amount of users, the software can be released to a larger audience and key performance indicators can be analyzed to track the success of the technology and business. We have identified 7 key performance indicators that are crucial to track for this business.

- Active Users is the first indicator. It is the number of unique users that use the service within a certain time frame. In terms of SmartCookie, the Active Users is the number of unique users in a given month. This indicator tells how large demand for the product is in a given month and its potential.
- Burn Rate is another important indicator that helps with money management. Burn Rate is the percentage of money spent or acquired from one month to the next, giving an estimate of when the startup will run out of money. Having a burn rate around 0 is ideal

for growth, meaning we are growing as rapidly as possible with our funds. It is calculated by dividing cash by monthly operating losses.

- Conversion Rate is an indicator that measures how many users convert from free users (with ads) to premium. This indicator shows how many customers are willing to pay for the premium version of the product, which is important because the profit margin is much higher for the paid subscription. It is calculated by dividing conversions by new users in a time period.
- Cost of Customer Acquisition measures the actual current cost of acquiring a customer by dividing the cost of marketing in a period by new active users in a period. This can be compared to the estimated CoCA to see how estimated Unit Profitability is affected.
- Unit Profitability is a very important indicator, because a business can't grow or even survive if it is less than 0. Unit profitability is revenue minus cost divided by units sold and shows the profit margin of each unit taking everything into account.
- Revenue Growth Rate is the percentage increase in revenue from one period to the next. It is a useful indicator for measuring the growth of a company and is calculated by subtracting a period' revenue by the previous period's revenue, then dividing by the previous period's revenue.
- Customer Retention Rate is an important indicator used to measure the lifetime revenue a customer brings in and how the user base changes over time. It is calculated by customers retained in a period divided by total customers at the start of the period.

These indicators will give a summary of the health and growth of the business as it exists. This is key to be able to respond to problems and adjust the business model and product to maximize growth and revenues.

Customer Interviews

As with any business, it is important to know whether its target customer would not only use its product but also be willing to pay for it. The following questions were tested during customer interviews:

- Is there an intersection between the population of people who track their food and people who order food? If not, what is preventing one group from also being part of another?
    - ie. For those who order food and want to track their nutrition but don't, what are the hurdles hindering them from doing so? For those who track their nutrition, are there difficulties when they decide to order food rather than cook for themselves?

- Are these difficulties enough to enable them to spend money on an application (SmartCookie) that would facilitate this process?

Customer Interview General Script – Personalized follow-up questions were asked when necessary

- Have you ever used nutrition tracking software?
    - If yes:
        - Which software do you use?
        - What motivated you to start tracking your nutrition?
        - How often do you use this software?
        - How much do you pay for this software? Does this frustrate you?
        - What type of food do you track/do you track everything?
        - How often do you order food delivery?
        - How do you track something like meals from restaurants/those that are delivered to you?
        - Have you ever wondered how the food you are ordering fits in with the rest of your diet?
        - Do these processes frustrate you?
    - If no:
        - What about nutrition tracking software is unappealing to you?
- Is there anything else you would like to add about your experience with personalized nutrition and food delivery?
- Is there anything else I should have asked?
- Who else should I reach out to?

Customer description	Summary of answers	Support or reject...
(1) Heavy tracker of nutrition & eats out	Individual uses MyFitnessPal to track all her meals, and has been on a weight loss journey since gaining weight during freshman year of college. She pays the $9.99 a month subscription and says it is comparable to subscriptions such as Netflix and Spotify, which facilitates everyday habits. She enjoys viewing her customizable nutrient dashboard and her	Supports that someone can be both an avid tracker of nutrition and order food. Supports that someone is willing to subscribe to a monthly software to improve eating habits. Support that people are interested in customizable progress tracking and personalized tips.

	progress in macronutrient goals. She also uses nutrition tips from MyFitnessPal's nutrition team. She often orders from third-party food delivery applications due to her busy college lifestyle, and uses MyFitnessPal's restaurant logging function to track these meals. It is not much of a nuisance, as the tracking process is the same. What she orders is usually based off of nutrition information available beforehand.	Supports that Millenials/Gen Z/college students have lifestyles where ordering food is common. Rejects that tracking food from restaurants is more time-consuming or adds difficulty to the food-tracking process.
(2) Heavy tracker of nutrition & does not eat out much	Individual uses a free MyFitnessPal account to track all her meals. She cooks most of her meals, and does not eat out much, so has not had the need to log restaurant food. The reason why she cooks food rather than ordering out is because she has more control as to what goes into the dish and know exactly what she is consuming. When confronted with eating out, she is concerned that she will not be able to find options that are suitable for her vegan diet and multiple allergies.	Supports that limited knowledge about restaurant food is a hindrance to ordering delivery. Supports that knowledge about food and how dishes fit into their overall dietary schema is important in determining what is eaten. Rejects that extensive tracking is a function that is wanted and would be paid for. Supports that an application may be helpful in terms of eating out if the individual has specific dietary needs.
(3) Occasional tracker of nutrition & eats out	Individual has tried multiple nutrition trackers, as many of them had user interfaces that had unsatisfying user interfaces or were not as well-rounded as he would have liked. However, he believes that since this time of "exploration" was several years ago, many of these applications	Supports that nutrition tracking services may be switched earlier on but as it is used, customer loyalty grows – there must be an incentive to change. Rejects that health consciousness would

	have not yet developed to be as holistic as they are today. Once he found the one that he liked, he stuck with it, especially since as data accumulated, it gave him less incentive to continue his prowl for the "best" nutrition-tracking application. However, he does not track his food much. It has not become a habit, and he usually falls out of the habit of doing so once he gets more busy. Once he is more busy and does not have time for all the self-care-related actions as before, he also tends to order food delivery more often.	motivate one to track their daily eating habits. Supports that ordering delivery is part of today's culture, especially due to its convenience. Supports that if the nutrition-tracking app were to have an automatic function that imported food order data, it would facilitate a more constant food tracking experience, which would allow for a more well-rounded tracking of progress.
(4) Does not track nutrition much	Individual is a ballet dancer and has grown up in a world that is hype-aware of weight, appearance, etc. Therefore, she tries to avoid nutrition tracking to prevent falling an obsession with counting calories. However, she does track meals during Nutcracker and Swan Lake season. Overall, she finds logging track irritating and wastes a lot of time. This contributes to how little she uses it. She also believes that the price is not worth it, as one should be able to listen to one's body. (It should be noted that she has extensive nutritional knowledge and has always had a concern over food and weight and may be in tune with her body than the average human.) She avoids eating out due to lack	Supports that nutrition-tracking software must have an approach where informed decisions are encouraged rather than a rigid/strict food regimen. Supports that application must be quick and easy to use. Rejects that a customer would want personalized suggestions/nutrition tips. Rejects that one would be willing to pay for these additional services. Supports that customers like to feel in control.

	of portion control and other factors that she cannot have control over.	

All participants in the customer interviews were selected to fall within the Millennial generation and Generation Z population, the targeted customer segment. Though there is a lot of variation amongst the interviewees, the following may be generalized: there is a common rejection of the hypothesis that users would be willing to pay for a subscription model. However, many believe that additional information that analyze their eating habits would facilitate food tracking and ultimately lead to a more informed and healthy lifestyle. Around half of the interviewees order food regularly. It is a common thread that if nutritional knowledge about nearby food were more accessible, it may be an enabling factor to order food delivery more or even using food-tracking applications more often.

Though there already exist multiple food-tracking services, there is still not one that encapsulates the many functions that SmartCookie has to offer. This holistic and well-rounded quality of SmartCookie may offer a competitive advantage, as it also plays into various customer habits. Though SmartCookie's target customer is niche, it has growth potential, as it is projected that more food purchases will shift to online platforms.

Financial Model: Hypotheses on Drivers, Outcomes, and Analyses

Discovering Drivers and Hypotheses:

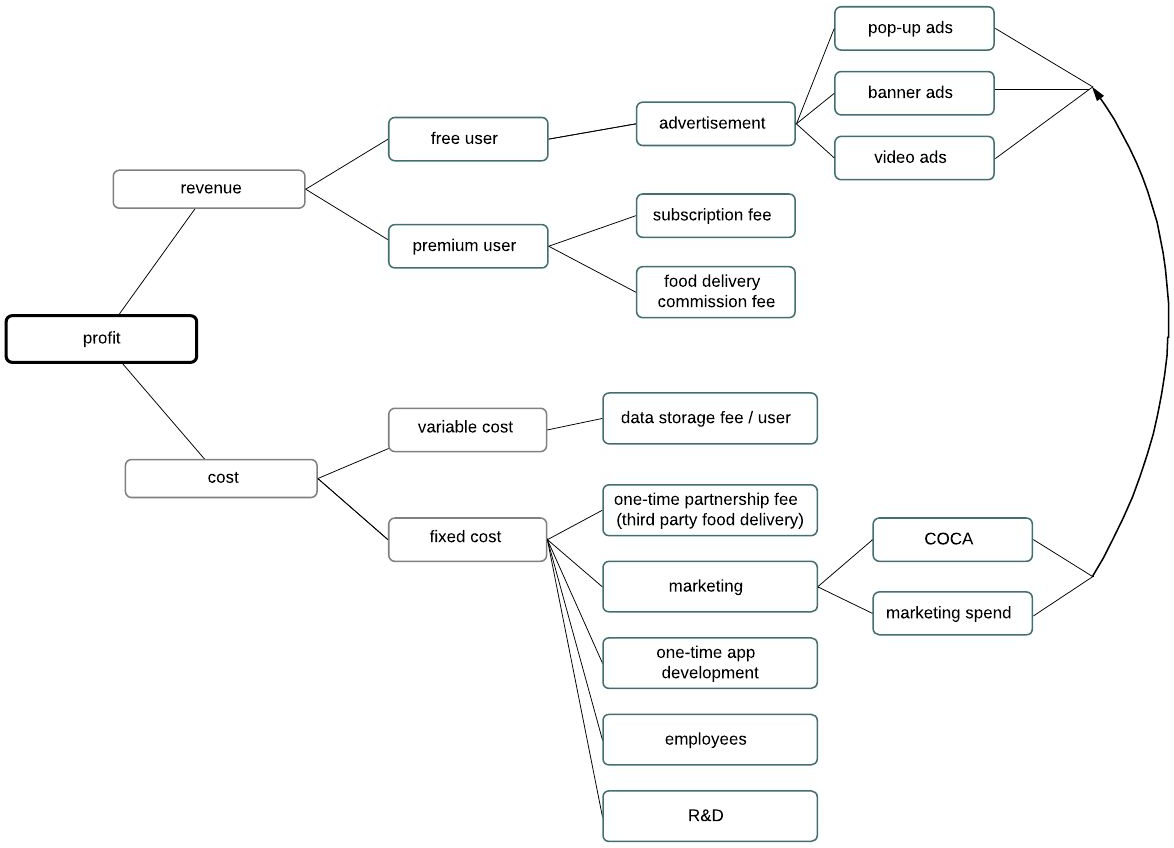

Figure 1: Fishbone Analysis

Our huge contribution will be the app-users. We segment our customers into two groups: free users and premium users. As explained before, when users pay $9.99 subscription fee, they will be able to use the app without advertisements and are even capable of ordering meals.

The subscription model can be a great revenue source, yet not many customers are willing to purchase subscriptions. Thus, we estimate the ratio between free users and premium users to be 9.5:0.5. This indicates that our main revenue source will be from advertisements. Nonetheless, to increase the need for subscriptions, we added food delivery and no-ad. services. The details will be discussed below.

Revenue analysis:

We estimate our niche customer target to be 6000 in total. In order to reach this number, we found the total number of online food delivery app users in the US. Then, we calculated the total percentage of the population in Manhattan, the area that we will be focusing on, and the percentage is multiplied to the total number of food delivery users (eMarketer). We believe that users, especially premium users, will be drawn to food delivery service and will consider nutrition tracking as an additional service, which led us to consider food delivery users to be our initial target. As mentioned above, our free and premium users ratio will be 9.5:0.5, and thus, 5700 free users and 300 premium users will be our customer base in the beginning. According to eMarketer, the net growth rate for all third-party delivery users is 21% in 2019 and will slowly decrease, reaching 10.5% by the year 2022 (eMarketer). We used these growth rates to calculate our net growth of customers.

For free users, their main revenue source is advertisements. We will have three different types of advertisements: pop-up ads ($3 CPM), banner ads ($1 CPM), and video ads ($3 CPM). For our premium users, although the number itself is relatively smaller than free users, their subscription fee and commission fee from food delivery will be our revenue sources.

Cost analysis:

Since we are collecting our customers' food delivery data as we order for them, our main variable cost will be the data storage fee. Additionally, we will be partnering up with third-party food delivery companies such as Grubhub and UberEats, and there will be a one-time partnership fee. On average, each restaurant pays around $350 - $500; we will assume to pay $400 for each company and partner up with two companies, GrubHub as it is the largest market share in NYC and Postmates for a larger selection of restaurants (Sagan). Our service also needs heavy research with nutritionists for detailed suggestions and accurate nutrition tracking. This will be done before we launch our app, and we will be updating our nutrition suggestions using AI, specifically machine learning with our customer data. By using each customer's accumulated data, the result will be more accurate and tailored to individual customers. Hence, one-time app

development will also be taken into consideration. Lastly, we will be focusing heavily on marketing and COCA since we are entering into already-established market: the intersection of nutrition tracking and food delivery. There exists competitors with great market shares such as UberEats and MyFitnessPal, so acquiring new customers will be a challenge.

Lifetime Value Model

	1	2	3	4	5	6
Revenue	$1,456,497	$ 1,475,920.00	$ 1,495,598.93	$ 1,515,540.25	$ 1,535,747.46	$ 1,556,224.09
Marginal Cost	$371,699	$379,132.98	$386,715.64	$394,449.95	$402,338.95	$410,385.73
Net growth		0.013333333	0.013333333	0.013333333	0.013333333	0.013333333
Number of customers	6000	6080	6161.066667	6243.214222	6326.457079	6410.80984
Discount Rate	0.025	0.025	0.025	0.025	0.025	0.025
Marginal Contribution	$1,084,798	1096787.02	1108883.294	1121090.3	1133408.504	1145838.358
LTV	$153,236,912					

	7	8	9	10	11	12
Revenue	$ 1,576,973.74	$ 1,598,000.06	$ 1,619,306.73	$ 1,640,897.48	$ 1,662,776.12	$ 1,684,946.46
Marginal Cost	$418,593.45	$426,965.31	$435,504.62	$444,214.71	$453,099.01	$462,160.99
Net growth	0.013333333	0.013333333	0.013333333	0.013333333	0.013333333	0.013333333
Number of customers	6496.287304	6582.904468	6670.676528	6759.618881	6849.747133	6941.077095
Discount Rate	0.025	0.025	0.025	0.025	0.025	0.025
Marginal Contribution	1158380.298	1171034.746	1183802.107	1196682.771	1209677.11	1222785.478
LTV						

	13	14	15	16	17	18
Revenue	$ 1,853,441.11	$ 2,038,785.22	$ 2,242,663.74	$ 2,466,930.12	$ 2,713,623.13	$ 2,984,985.44
Marginal Cost	$471,404.21	$480,832.29	$490,448.94	$500,257.92	$510,263.07	$520,468.34
Net growth	0.1	0.1	0.1	0.1	0.1	0.1
Number of customers	7635.184804	8398.703285	9238.573613	10162.43097	11178.67407	12296.54148
Discount Rate	0.025	0.025	0.025	0.025	0.025	0.025
Marginal Contribution	1382036.904	1557952.931	1752214.808	1966672.204	2203360.057	2464517.109
LTV						

	19	20	21	22	23	24
Revenue	$ 3,283,483.99	$ 3,611,832.39	$ 3,973,015.63	$ 4,370,317.19	$ 4,807,348.91	$ 5,288,083.80
Marginal Cost	$530,877.70	$541,495.26	$552,325.16	$563,371.66	$574,639.10	$586,131.88
Net growth	0.1	0.1	0.1	0.1	0.1	0.1
Number of customers	13526.19563	14878.81519	16366.69671	18003.36638	19803.70302	21784.07332
Discount Rate	0.025	0.025	0.025	0.025	0.025	0.025
Marginal Contribution	2752606.287	3070337.131	3420690.465	3806945.524	4232709.81	4701951.919
LTV						

	25	26	27	28	29	30
Revenue	$ 5,750,791.13	$ 6,253,985.35	$ 6,801,209.07	$ 7,396,314.87	$ 8,043,492.42	$ 8,747,298.00
Marginal Cost	$597,854.52	$609,811.61	$622,007.84	$634,448.00	$647,136.96	$660,079.70
Net growth	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875
Number of customers	23690.17974	25763.07046	28017.33913	30468.8563	33134.88123	36034.18334
Discount Rate	0.025	0.025	0.025	0.025	0.025	0.025
Marginal Contribution	5152936.614	5644173.747	6179201.234	6761866.871	7396355.462	8087218.309
LTV						

	31	32	33	34	35	36
Revenue	$ 9,512,686.58	$ 10,345,046.66	$ 11,250,238.24	$ 12,234,634.08	$ 13,305,164.57	$ 14,469,366.47
Marginal Cost	$673,281.29	$686,746.92	$700,481.85	$714,491.49	$728,781.32	$743,356.95
Net growth	0.0875	0.0875	0.0875	0.0875	0.0875	0.0875
Number of customers	39187.17438	42616.05213	46344.9567	50400.14041	54810.15269	59606.04105
Discount Rate	0.025	0.025	0.025	0.025	0.025	0.025
Marginal Contribution	8839405.291	9658299.74	10549756.38	11520142.59	12576383.25	13726009.52
LTV						

Figure 2: Lifetime Value Model

To come up with the lifetime value model, we have first calculated our estimated revenue and cost. There are some assumptions we have made throughout:

- Since revenue was $1,456,497 when there are 6,000 customers, would assume that revenue/person = $242.75
- 95% of the cost is fixed cost, so we'll put the cost as a constant value*inflation rate (which in this case would be 2%)
- The net growth rate is 1.33% in year 1, 1% in year 2 and 0.875% in year 3 a month since the annual net growth rate is 16% in year 1, 12% in year 2 and 10.5 in year 3 (Editors)
    - The retention rate of average food delivery app is around 22% (Danny)

To calculate our market size, we have multiplied the population of Manhattan (since we are only going to focus on Manhattan at first) and the percentage of people using a delivery service within the US. Then assuming that we will be able to capture 3% of the market share, our estimated number of customers in year 1 was 6,000. From there, to calculate the revenue, we have assumed that only 5% of our customers would pay for the subscription and the remaining 95%, freemium.

Revenue			1 use	total uses	Monthly
use / month / user	30				
pop-up (2 per use)	$3	5700	$17,100	$34,200	$1,026,000
banner (1 per use)	$1	5700	$5,700	$5,700	$171,000
video (0.5 per use)	$3	5700	$17,100	$8,550	$256,500
subscription / user / month	$9.99	300			$2,997.00
commission / delivery	15~30%				
				total	**$1,456,497**

Figure 3: Total revenue calculation

This then gives us a revenue of $1,456,497 / month.

To calculate the cost, we have divided the cost into variable cost and fixed cost. Our variable cost included data storage fees, and our fixed costs included marketing, office space, billing, administration, partnerships, and R&D. For marketing, we have decided to use 20% of our total revenue. For office space and billing, we put $0 initially since our founding members would work on the Columbia Startup center without getting paid at first.

The partnership fee would be a one time cost to Grubhub for our food delivery; we chose Grubhub since it has the highest market share in NYC so far.

Cost			
-variable cost	per user	# users	total
data storage fee / user / month	$0.06	6000	$360.00
-fixed cost			
Marketing / month	$291,299		
office space	$0		
billing (member / year)	$0		
administration			
office equip. / supply	$0		
benefits			
partnership fee / third-party delivery	$400		
R&D	$80,000		
Total	$371,699		

Figure 4: Total cost calculation

This would give us a cost of $371,699 per month. Subtracting this from our total expected revenue, we would get $1,084,798 of profit per month. Plugging in all these numbers to generate LTV for the next 36 months, we get that the LTV for our product is going to be $153,236,912.

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