

FulPillment Executive Summary

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Approximately 75% of people who take medication do so improperly, whether it be by forgetting to take their medication or not reordering it on time (Epilepsy Research UK, 2020). In the US, 27% of people from age 12-19 take prescription drugs, and this percentage rises as they get older (Martin et al. 2019). Our survey results corroborated this number, indicating that 35% of teenagers take pills (a higher statistic as this includes supplements). However, pill organizers are rarely marketed for this age group and are rather targeted for the elderly who tend to be more inexperienced with technology. Thus, people are stuck using their Reminders or Clock apps, which have no tracking history or check back to ensure that the pills were taken. Alternatively, they have unportable and bulky technical options or bare plastic boxes. We at FulPillment created an innovative solution to help customers who want to integrate their wellness—whether it be medication or supplements—with their mobile phones, a growing market in the information age. FulPillment is a phone-sized pillbox and mobile application created to address three core user needs: pill organization, scheduled notifications to take medication, and reminders to reorder medication.

Pill organizing is the core of the platform and is the only physical component of the FulPillment service (Exhibit 1A). The product is designed with durable plastic material and can fit in one's pocket (it can hold around 30 regular strength Tylenol pills), with a pushbutton underneath the locking mechanism (Exhibit 1B). Whenever the box is opened and closed, this information is transmitted through a Bluetooth connection to the FulPillment app, available for free on both Android and IOS (Exhibits 2A, 2B). On the app, users begin by inputting their pill-taking schedule to receive a reminder at these times every 15 minutes until the box is opened and closed to ensure that users do not forget about the notification (Exhibits 2C, 2D). On the app's dashboard, users input how many pills they will place in the box, as well as how many are taken each serving. The displayed count on the dashboard will be deducted by this amount taken each serving, and all of this tracking data is stored using Google Firebase's cloud storage platform. With this data, the app calculates when a user will run out of pills and sends them reminders a week, and then two days, in advance to reorder them (Exhibit 3).

To ensure that our business model remains consumer-centric, we utilized a conjoint analysis with four factors: organization (i.e. by pill type, day of the week), refill frequency, form factor (i.e. carriable by hand or unusable outside the home), and price. Ideally, users would organize their boxes by pill type, meaning that they would not be limited to single purchases. They would buy multiple boxes to hold different pills which can be synced with our application and physically stacked together using the magnets on the inner sides of the box (Exhibits 1C, 1D). Each additional purchase has an extra 5% off discount, capped at 20% on the fourth purchase. Furthermore, we offer a 6-month limited warranty on

manufacturing defects. To ensure we establish positive and consistent relationships with users, the customer service portal on our website allows users to directly contact us and let us know of product malfunctions and improvements. By taking action on common and insightful suggestions, we can create an overall pleasing user experience to establish a trustworthy reputation to both existing and potential customers.

Currently, it is the optimal time to enter the pill organizer market. The prescription drugs market value is forecasted to hit \$1.567 trillion in the next five years, and the global dietary supplements market size was valued at USD \$140.3 billion in 2020, representing a unique opportunity to cater to an immense industry (Acumen Research and Consulting, 2021; Grand View Research, 2021). Even before COVID-19, the number of Americans' prescriptions rose from 2.4 billion to 4.5 billion a year, a 85% increase amid the rise in new drugs (Preidt, 2017). The pandemic spiked this growth further, as consumers have ramped up purchases of non-prescription medication and supplements, which is likely a long-term trend due to the remaining focus and desire for health protection post-pandemic (Ticky et al. 2021). Overall, our target market of pill takers that are comfortable with technology is currently immensely underserved, with the vast majority of options being entirely manual. Quarantine is leading seniors to spend more time with technology, but at a slower growth trajectory in comparison to the increase in the younger, tech savvy population: largely millennials and Gen Z-ers (Poon and Holder, 2020). Since our goal is to target a behavioral segment, we will not close off the products to senior citizens, though they will not be our main focus.

According to our analysis of leading pill organizers and boxes, none of them address all three aforementioned core user needs and also have a portable design for traveling (Exhibit 4). There are three main competitor groups. The first consists of the only options cheaper than FulPillment: bare non-technological containers that cannot remind users to refill their prescriptions or take their pills. The second involves those that may connect to a phone, yet they are often only carryable in a bag and do not ensure that users took the pills (whereas FulPillment continues notifications until the box has been closed again). The third category contains extremely advanced organizers and dispensers that may have automatic pill sorting and multiple types in one product, but these cannot be carried around. Furthermore, they are often priced over \$70—significantly more expensive. We position our product as an all-in-one integration of the strengths of these products—portability, affordability, and connectivity—and avoids the additional features that are less crucial for a seamless pill taking experience (i.e. a prerequisite to having a pill dispensed is remembering to get a pill in the first place). Based on our conjoint analysis, price was the most important feature to users, weighted at 47.2%. This is an indication that the pill organization market is price sensitive, and we decided to enter the market at a price point of \$5.99, on par with the cheaper

competitors. Furthermore, users desired a pillbox that could easily be carried around, or else their willingness to pay would diminish by \$1.

Our distribution strategy, a key component of the marketing mix, will initially involve direct distribution through our own website and indirect distribution through partner websites, namely Amazon. With an Amazon merchant account, we will have access to their ads as well as Fulfillment by Amazon (FBA). For a product of our size, it will cost us \$2.16 and an 8% commission per package to ship through FBA ("How Much Does it Cost to Sell on Amazon?"). As our company matures, we will engage in further indirect distributions by partnering with insurance companies, hospital networks, and individual doctor's offices using a sales force (mirroring those of pharmaceutical companies with a similar incentive structure). Our value proposition to such actors is a solution for the most common reason that \$637 billion of revenue is lost from medication non-adherence: forgetfulness (HealthPrize, 2021). Given this massive potential revenue gain for our partners, we offer a very attractive value proposition. This move would allow us to scale up our operations and make our pillbox much more accessible. Being endorsed by prominent members of health communities like doctors would strengthen FulPillment's reputation, build the brand, and bolster word-of-mouth marketing.

Another way we drive adoption is by offering a 10% discount, displayed on the website, to both the referrer and the referred when a customer gets another person to also buy the product. This mutual benefit, akin to Dropbox's strategy, incentivizes people to adopt usage of FulPillment. Our key marketing message to consumers is represented by our tagline: "humans forget, but FulPillment remembers." By recognizing that health-related issues are often a continuing source of stress for pilltakers, we intend to focus on our ability to eliminate the burdens associated with remembering to take and reorder medication.

Besides utilizing partnerships with these health-related industries, we will utilize social media accounts to reach our target younger audience. Instagram and Facebook would be our main marketing channels as they are two of the most popular sites—especially for younger populations—and can expand our market further (Statista, 2021). We will initially base content for these accounts on proper medication practices and wellness tips (i.e. breathing tips for sleep), as gathering a following solely through advertisements does not maintain high customer retention or user turnover as it is often considered bothersome by customers. Amid this content for our health conscious target market, we can intertwine app updates and occasional advertisements for our product. For instance, in a video recommending people to take Vitamin C, we can display the pillbox notifications in action. Even though this strategy of building a following and community will be very effective in the long term, it will take consistent posting campaigns to gain a following that can become an asset for the company. To bridge the gap between this inflection point and our start, we must supplement our brand building on social media with other forms of advertisement.

We will use the Instagram/Facebook Ad manager to display FulPillment on Instagram stories and target feeds about wellness, medicine, and reminder apps. This will be our initial, manually-placed ad set to create a basic customer profile. After 150 checkouts from our website, we will feed this data into the Facebook Pixel, which is an AI that automatically creates new ad sets that generate the highest Returns on Ad Spend (ROAS). These ad sets can be used to create similar ones to further expand our reach, using the lookalike audience feature to find similar profiles based on behaviors and demographics.

Within the Google platform, we will focus on Search and Shopping Ads, which will yield the largest result as consumers who click on them are more likely to intend to purchase something. The average cost-per-click (CPC) for Google Search healthcare industry ads in 2020 is \$2.62, with an average click-through rate (CTR) of 3.27% and conversion rate of 4.63% (Irvine, 2021). Due to our pricing, this will be expensive for our company and potentially only break even for us if customers purchase from Amazon. However, we believe that due to our team's experience using Google Ads (a member is a Certified Google Search Ads Specialist) and our competitors' focus on marketing to the elderly, we can experience a lower CPC for our specific keywords. We will then apply a similar strategy from Search to our Shopping ads, using industry averages for financial forecasts until we can generate our own data about customers' CTR for our pill organizers. With this initial ad blitz, we will generate significant momentum for our product.

FulPillment's current primary revenue stream is its unit sales. Each pill organizer will be listed at a price of \$5.99 with a 5% discount for each additional unit purchased, capped at 20% in order to incentivize a large number of purchases. The free companion app adds to the overall value perception of the pill organizer, but as of now, will not drive any revenue directly in the early stages. Possible additional revenue streams include displaying ads in our application, primarily for fitness, supplements, or our partners (pharmaceutical drugs, insurance options, etc.). However, we do not want to risk causing user dissatisfaction. Thus, we will conduct A/B testing with a control group of 5% of users without ads and a treatment group of 5% with ads, comparing average time spent on the ad-containing interface and app as a whole. With survey results, we can gauge opinions to gauge whether adding advertisements would significantly drop user satisfaction. Furthermore, we will drive revenue in the future through a variety of upsells such as a premium version of the app, offered as a Software-as-a-Service (SAAS) at \$0.49 a month. Some features include an ad-free interface (if our free version does implement them), a social wellness community posting and chat forum, and customized supplement recommendation plans based on users' biological details.

Our cost structure is primarily based on consumer acquisition costs (CAC) and manufacturing contracts. As aforementioned, we may face a high CPC on Google, posing a potentially dangerous CAC for our business model. However, any ad reliance would be short-term as they are primarily intended to

kickstart before word-of-mouth marketing takes FulPillment further. Furthermore, our product is inexpensive to produce and can achieve economies of scale with proper manufacturing equipment. None of our parts—small magnets, plastic, Bluetooth chip, small button, and a battery—are proprietary. They are all very standard, already mass-produced, and readily available materials. As a result, we experience low manufacturing costs (\$8.68 per unit for the prototype, and we estimate we can lower this by 75% over time with mass production). The only risk in our manufacturing cost would be the COVID-19 silicon chip shortage affecting supply chains for Bluetooth chips, but this would be a temporary issue until pandemic recovery occurs. In terms of key partnerships in manufacturing and distribution, we would use DHL International Logistics as our delivery partner. With their impressive array of services and reach, we would have multiple options for our manufacturing partner (DHL, n.d.). The sole software cost is Firebase Storage: we will not need to factor in salary as our entire startup team are founders that are willing to work for free in the short term.

From our humble startup team, we wish to expand our product offerings even further. Within the pill-taking aspect, a variety of sizes or subdivisions for containers could help customers find the perfect fit for their unique needs. Though our current vision is to create a world where nobody forgets to take their pills again, this is just one application of our technology, which can be transferred to other storage industries. For instance, food storage companies like Tupperware provide useful, reusable containers to extend shelf life. However, people frequently forget to clean out leftovers, and FulPillment would be able to provide a new value proposition to customers by reminding users to eat the food or clean out the container. With a diverse array of products spanning numerous basic life activities, we hope to attract customers and retain them, establishing brand loyalty to increase their customer lifetime value.

Ultimately, our trustworthy and innovative containers offer a stress-free and seamless value proposition for pill takers, but simultaneously have numerous pathways to progress to a larger consumer base for the future. For now, our social media and search-based ads will propel FulPillment to transform the health and wellness community, ensuring that people never stress about or forget their pills again.

Exhibits

Exhibit 1A: closed 3D CAD model of FulPillment box



Exhibit 1B: 3D CAD model of FulPillment latch



Exhibit 1C: open 3D CAD model of FulPillment box



Exhibit 1D: 3D CAD model of stacked Fulpillment boxes



Exhibit 2A: UI introduction page



Exhibit 2B: UI homepage

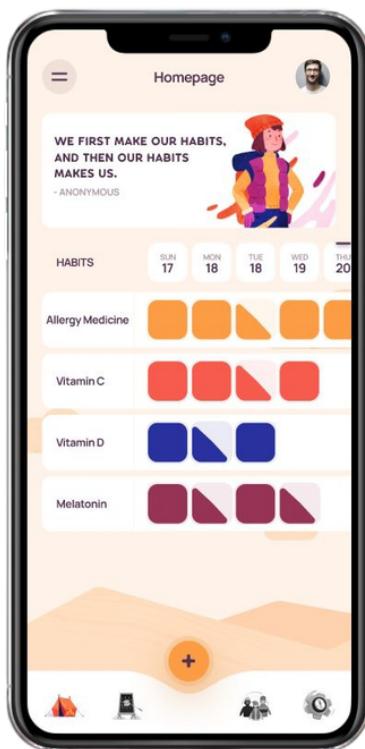


Exhibit 2C: UI alarm-setting page

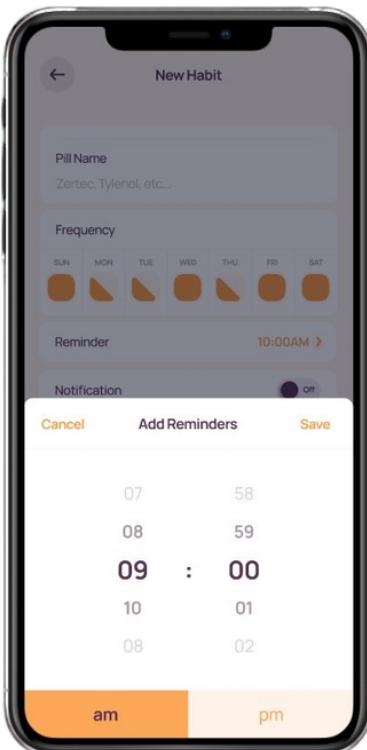


Exhibit 2D: UI reminder page

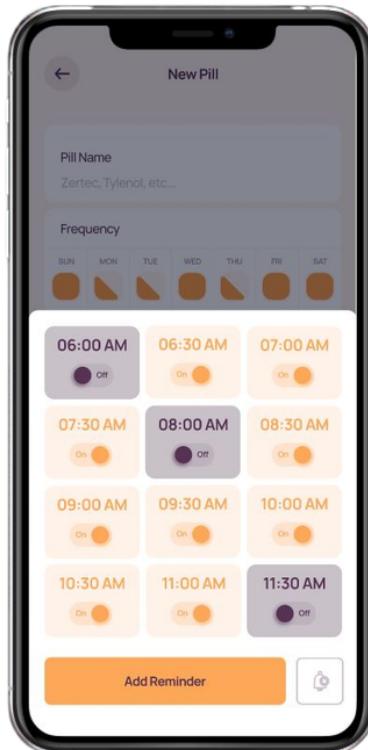


Exhibit 3: product specifications

Box Dimensions	4.72 by 3.15 by 0.98 inches
App Size	150-200 MB
Battery Life	6 months
Sensor Accuracy	> 99%
Bluetooth Range	approximately 30 feet

Exhibit 4: competitor analysis

Pill Organizers	Price	Portability	Gives Reminders	Refill Reminders	# of Regular Strength Tylenol Tablets
MedQ Daily Pill Box Reminder with Flashing Light and Beeping Alarm	\$74.95	Stationary	✓	✗	42
XINHOME Pill Organizer Box Weekly Case	12.77	Fits Into A Bag	✗	✗	56
Pill Organizer Box - 4 Compartment Travel Medication Carry Case	\$5.69	Pocket	✗	✗	16
FulPillment	\$5.99	Pocket	✓	✓	30

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