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MOBIT Operations Strategy

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Executive Summary

MOBIT is a mobile application technology that increases the health of bipolar patients through customizable electronic communication that encourages healthy behavior and reduces return treatments at doctors offices. This increase in patient health creates value through the reduction of expensive services and hospital visits common to the bipolar patient.

The complex mHealth, or mobile health, industry is a growing, dynamic environment and is still in its infancy; therefore detailed extensive case models do not exist for current products. Although the competitive environment is dense, preliminary patent searches determined that MOBIT is novel, useful and innovative through its customizable, adaptive, and sharing responses - leading us to assume specific areas of the technology may be patentable. Further research is needed in this area, and a lawyer consultation may be useful.

Other products in the industry were identified and their business models were reverse engineered in order to develop a model that MOBIT could use to penetrate the growing bipolar treatment market. Unique traits of the bipolar patient market were initially seen as hurdles but eventually emerged as the source of strength in the developed business model. The symptoms of bipolar disorder result in low customer feedback response analysis confidence levels, creating the need for useful customer data. Additional the symptoms such as concentration, memory problems, mental sluggishness, and fatigue reduce the available market that is willing to obtain treatment. Income levels are variable in the bipolar patient population and below the different market segments are broken down.

Three customer classes were identified - individual patients, insurance companies, and life science companies. This sequential lineup was organized in order to create a market pull from the product consumption of the previous target customer segment - meaning once the individual patients were using the application, insurance companies would want to offer it, and subsequently life science companies would be interested in the data that would be collected from the patients. However, the challenge remaining was to create market pull for the first target customer segment, the individual patients. After utilizing the *Path to Enlightenment* process and doing many case interviews, we found

the bipolar patient who is actively seeking treatment is commonly prescribed medication, group therapy and family counseling. Creating a pricing range and product offering for the network around the bipolar patient for free (i.e. family, friends, etc.) generates the encouragement for the purchase of the product by the patient. Additionally, each of the individuals in the network would be able to make a “donation” to the purchase of the application for their friend in need. After providing the application to individuals and MOBIT develops a steady user base, the service may be offered at a lower price to the insurance companies, who would be interested because it reduces patient re-admittance along with other related healthcare costs proven through additional data from the new users. Finally, life science companies will provide additional revenue opportunities through the purchase of the anonymous aggregate data that MOBIT will be able to provide from their application sales, especially valuable due to the lack of accurate customer product feedback due to the unique symptoms of bipolar disorder.

Product Strengths

MOBIT is a proven technology that creates benefits to bipolar patients by providing information and reminders electronically to their mobile device to maintain treatment and increase prescription adherence. The technology has demonstrated success in published research journals, indicating the use of MOBIT technology is beneficially for the patient, the patient’s caregiver network, and the patient’s mental illness care providers that have economic investment in the bipolar patients care. The technology was developed by a well-respected industry leader, Dr. Colin Depp, Ph.D., Assistant Clinical Professor in the Department of Psychiatry at the U.C.S.D. School of Medicine, who is interested in providing benefits for the mentally ill community, as well as inventing a value-creating technology for the benefit of the University and the community that he has invested his life’s work in.

The bipolar treatment market is isolated with high barriers of entry due to the extensive education and experience required as a respected industry professional in order to operate in the industry. The main barrier for other entrants is the most expensive valuable resource known to any individual: dedication, time, understanding, and imagination. Industry leaders have invested decades of education and experience in order

to become experts in their field and the small number of bipolar experts is limited by the extensive education, experience and expertise that is required.

Patents have not been filed for this product but the intellectual property should be a patentable technology due to the technology being novel, nonobvious and useful. There are numerous patents that deal exclusively with bipolar disorder but patent searches found no comparable technology. Patents with “Bipolar disorder” and similar word combinations were divided into two categories - (1) diagnostic tests to determine presence of the disorder through various methods and (2) treatments of the disorder involving the consumption of chemicals and drugs that include ketamine, carbamazepine, piperazinyl-heterocyclic compounds, ruboxistaurin, enzastaurin, sunitinib, midostaurin and many others. Further research is needed in this patent area, and a lawyer consultation may be useful through Bionomics Consulting Group or other means.

There are numerous financial resources available to this product - which is positive because additional capital will be required for the marketing, development and production of the application. Some of the available resources include the inventor’s personal financing, venture capital, and university grants. After research and discussion with Colin and other industry leaders at the University of California San Diego, it is believed that MOBIT will be able to receive additional funding through venture capital, University or National Institute of Health Grants by Colin. The economies of scale will be generated quickly due to the nature and software of the product once the work developing and optimizing the application software has been complete, and fully scalable - driving a need for high users.

Product Weakness

Although there is outstanding value that may be created, there are a number of significant risks and weakness that must be addressed in order to assure a successful product launch. Until this analysis, there has been no strategic plan for the launch of the product, resulting in significant loss of early market entry opportunities. Ideally, the strategic direction indicated in this analysis will be utilized and a product launch process

will be initiated, but clearly, without a clear strategic direction, market optimization will not be obtained.

The MOBIT application is dependant upon its integration into the dynamic communications industry that has constantly shifting levels of technology and is regularly updated to prevent bugs, hacks, or viruses. In order for there to be a seamless integration of a mobile application into a market with no tolerance of error, consistent maintenance with the latest generation and most widely used technology is key. The smartphone industry is readily shifting, and large companies spend many resources in order to maintain acceptable levels of service. With this in mind, Dr. Depp has an extensive network of industry contacts while the technology is supported by a collection of experts and community advisors - however, there are no full time employees responsible for the product launch. Future production and market introduction of the application will require the employment or dedication of industry professionals which may be outside the scope of expertise of the inventor; for example, an application developer to make and maintain the application on the iPhone.

The marketing of the product is also an enormous weakness that must be recognized. The inventor and advisory board are made up of bipolar disorder experts and additional wireless technology marketing must be performed in order to achieve market and brand introduction by an yet unidentified market expert that must be retained. After research, the marketing of this product will face two main challenges. The first is the branding and marketing of the application to the selected external markets. A clear, lucid, brand strategy is conveying that MOBIT is *the* application for helping friends with bipolar disorder. The results of the experimental studies showing increased performance levels, as well as the various monitoring trend graphs must be created in order to successfully communicate the benefits of the technology and introduce a creatively strong brand image. The features of the product, the benefits, and the consumer rewards of the brand must be established and communicated to the bipolar disorder market and their networks in a clear fashion. In order to successfully communicate that the product is effective and has been proven to work, Orlando Portale, Chief Innovation Officer with Palomar Health, in an interview for this project remarked: “Doctors would need to have clinical evidence, short term, less than a year, with proof of effectiveness. The trial

would have to be designed with rigor and have a high enough patient number to proof effectiveness. Without clinical evidence, the product will not be used.” The second challenge involves understanding the segmented markets that make up the patient population. The bipolar disorder market is a difficult market to penetrate due to the characteristics and symptoms of the illness. Concentration and memory problems along with physical and mental fatigue are common symptom of the illness - reducing the accuracy of any type of customer feedback analysis. Variable income levels also characterize the population of the market, resulting in a shifting customer group that creates a moving target for a successful customer satisfaction strategy.

Opportunities

The opportunities for further development of the technology are promising. Bipolar disorder is a growing diagnosis in this country due to numerous causes - some agreed upon and some controversial. There is also common disagreement if the disorder is actually increasing or if only the *diagnosis* of the disorder is increasing. Either way, the diagnosis of the disorder is growing resulting in a growing total available market for the technology. Although actual growth rates vary in the literature depending on the author’s perspective, estimation varies between 2%-40%. It is clear that the disorder is increasing resulting in increased available market and potential benefits for the inventor. The application is uniquely created in order to be customizable for individual patients - so the ability to migrate into different illness populations is an opportunity with enormous potential. Other channels, like insurance and life science companies and doctors, are inherently and positively affected by the introduction of this application into the market because health care costs would be lowered and patient hospital re-admittance would decline.

Threats

The most obvious threat is the large number of potential competitors already established in the bipolar market. Numerous online applications exist for Apple and Android that are exclusively designed for bipolar patients and the development of an app similar to Dr. Depp's technology, although not yet developed or seen, can be expected to enter the market shortly. There are other products that have similar technologies but that different diseases. Voxiva is a company founded in 2001 that creates and manages mobile health service products for the mHealth industry using interactive software launching more than a few successful products that treat a wide variety of conditions such as Text2Quit and Care4Life (an interactive smoke quitting application and diabetic patient treatment organizer application). Other Voxiva products include Text4kids, a product that helps parents and their children keep track of their vaccines, health records, and doctors appointments and Text4Health, a service that provides similar updates, reminders and information for adults. William Warshaur, former Voxiva executive, in an interview conducted for this report, indicated that there are numerous conditions which can be successfully treated through the use of interactive mobile software. He stated that the most important factor predicting a product's ability to operate as a mobile health technology is the speed of response given back to the patient and the level of benefit the patient receives.

After researching the numerous applications that have already identified and captured the bipolar customer's needs, we found the bipolar patient application market can be divided into two areas: (1) content providing and (2) calendar reminders. Widely available 'content providing' apps are useful for the patient by providing informative content generated by various professional and nonprofessional sources that are believed to improve the patient's mood and reduce negative symptoms through educational mood enhancement. 'Calendar' type applications are useful for the bipolar patient by recording moods entered by the user and using the entered information to make predictions and/or recommendations to improve future settings and reduce manic/depressive episodes.

Strategic Direction, Who Pays for the Application, & Recommendations

Initially, a multi-sided business model was considered that would provide service to bipolar patients for a reduced price and generates revenue from insurance companies paying for access to the users and reduction of hospital re-admittance. However, this was rejected and will not be utilized until later in the product lifecycle once larger “proof of concept” and additional users are generated. A freemium business model was also considered where a basic product would be given to bipolar patients with a premium product offered for a higher price, but this idea was rejected for several reasons as well. Lincoln Murphy, Managing Director of 16 Ventures, has said “One key element to the viral nature of Freemium is that simplicity and “cool” have a lot to do with virality.” This technology is not simple, and there is no consideration of bipolar disorder being “cool.” The freemium business model was also rejected due to the variability of the customer income levels. Because of such high variability in stability levels and income levels, it was determined that the majority of users would obtain the service without increasing their service levels. The reason we considered this model is because there have been several examples of similar products that utilize what looks like a freemium model but is actually subsidized by private companies and organizations. Care4Baby, a Voxiva product, is a service for pregnant women that provides updates, information, reminders and suggestions in order to improve the health of the newborn child and is free for the mothers. Development of the product was done in partnership with the AT&T and the National Healthy Mothers, Healthy Babies Coalition (HMHB). The service is provided to mothers for free, but AT&T, HMHB and Voxiva all generated benefits to offset the costs of the investment.

Further analysis reveals additional obstacles unique to the niche market that is made up of patients diagnosed as being bipolar. The typical bipolar patient varies between periods of mania and depression, while only being motivated to seek additional treatment during times outside of manic episodes. These truths significantly reduce the total market availability to a level that would have difficulty supporting the launch and deployment of a service and product - creating the need to identify additional markets and hopefully create a strong market pull for the product from an existing area into the identified bipolar patients market. According to the Mayo clinical, treatment for bipolar

includes cognitive behavioral therapy, medication, working in groups and family therapy. Clearly the need for strong network support exists. Therefore, the identification of the network of support around the bipolar patient must be recognized as potential customers for the product to obtain the needed customer capture to successfully launch.

This unique quality of the bipolar patient market requires a strategic market and pricing strategy designed with the rigor that is reflective in the importance of the previously outlined characteristics. Through interviews conducted with industry professionals dealing with bipolar disorders, it was determined that the product could successfully be launched if the value was determined to outweigh the costs of bipolar treatment. Orlando Portale remarked, “The price of the product would be dependant on the value savings to the final customer.” According to Dr. Jeff Guo from the Division of Pharmacy Practice and Administrative Sciences, College of Pharmacy and the Institute for the Study of Health, University of Cincinnati Academic Health Center, in California, the annual treatment cost for patients with bipolar disorder was \$11,641.“

This technology is not a replacement for treatment, but an improvement in treatment. Therefore the cost of the product is dependant upon the cost savings the patient receives while using this technology. Based on the study “Mobile Interventions for Severe Mental Illness, Design and Preliminary Data From Three Approaches,” improvement is seen when using the technology, but in this study treatments costs were not reduced due to the experimental design of this study. We assume that a patient that is using this technology can expect a treatment savings of up to 10% of treatment costs, resulting in a savings of \$1,164 annually, or \$97 monthly.

Assuming the bipolar patient has decided to commit to a lifelong treatment plan through medication, education and therapy, the patient would recognize and accept the help of the people around him, including their professional (bosses, co workers, supervisors etc) and personal (husband, wife, brother sister, caregiver, etc....) contacts. By providing the product to the patient at a price less than \$97 monthly and a complementary product for the patients network connections and doctor with vested interests in the bipolar patients health and well-being for no additional cost, the benefits are clear for the patient and their friends. A strong network effect is created improving the patients treatment and health because the patients caregiving network is supportive and

encouraged to promote the use of the application offering encouragement to the bipolar patient. This strong network of support produces additional benefits including the reduction isolated feelings from the patient, reduction in increased medication consumption, and future identification of what triggers emotional events.

Savings are obtained by the patient through reduced health care costs, the patients network through the reduction costly and emotional caregiving, the doctors and hospitals on treatment costs and followups, and the patients health care insurance carrier through the reduction of expensive treatment. By providing this product to insurance companies at a price point below the individual price point (\$97) , the insurance carrier is motivated to purchase the product in order to reduce their costs and provide this service to their customers for free - creating further additional network growth. However without empirical data and a large number of users, insurance companies will not be interesting in this product.

Finally, the anonymous aggregate sales data can be provided to drug companies as a valuable form of market research, but this is further down the line once the application is developed. In earlier stages MOBIT would be able to send the data in a complementary application directly to the doctor's patients for easy, decentralized, non-costly follow-ups. Meanwhile, large pharma companies in the bipolar disorder treatment market like Merck and Pfizer are seeking ways to effectively reach and communicate their message and treatments to patients. By supplying patient and sales data, MOBIT would be able to provide additional understanding of who the patients are, where they are located, what they do and how and why they seek or don't seek treatment.

Appendix

(A)

Business Model Canvas

Value Proposition-

1. MOBIT is a customizable software service for bipolar patients that helps patient manage their condition resulting in a higher quality of life and improved treatment.
2. MOBIT reduces costs for healthcare providers by improving the health of the patient population

Key Partnerships

1. Patients-MOBIT provides a service that improves the health and lives of patients struggling with bipolar disorder.
2. Software and technology developers. In order to take advantage of economies of scale MOBIT needs to establish partnerships with organizations that can generate and create the software needed for the product.
3. In order to anticipate changes in populations, MOBIT must establish partnerships with health insurance providers and healthcare professionals.

Revenue Stream

Revenue's are generated through the sale of the service through the individual technology to individuals and groups and the sale of aggregated anonymous patient population data.

1. Insurance companies will be motivated to provide revenue because the product improves the patient population, reducing costs.
2. Individuals are motivated to provide revenue because the product improves the quality of life and reduces their healthcare costs.
3. Revenues are furthered generated through the establishment of relationships with companies that purchase aggregate sales data.

Cost Structure

Value driven. The product will create value in order to reduce costs. By providing services that result in the reduction of expensive treatments, value is saved. Fixed costs are the development of the product and the maintenance of the software. Variable costs are minimal and dependent on patient acceptance.

Customer Segments The identification of the patients network as distinct customer segments create additional market opportunities made up of:

1. Niche market (Individual patients)
 - a. People diagnosed with Bipolar disorder
 - b. Networks surrounding patients
2. Healthcare providers, insurance companies.

Customer relationships

The establishment of a community-based relationship will allow direct and indirect contact from the company to the clients as well as client to doctor and client-to-client relationships.

Key Resources

The software platform that improves the quality of life for bipolar patients and reduces costs for healthcare providers/experience/industry knowledge.

Key Activities Maintaining and developing software product platform, providing services to bipolar patients, product promotion.

Channels The service will be provided to patients through online PHP based software and cloud-based online portals. Initial consultation with patients will be through clinical visits and doctor patient relationships protocols will be established

(B)

List of Content Providing Apps

1. Bipolar Disorder Uncovered-Informative app that provides information for bipolar patients and users
2. BiPolar Bear-App that provides uplifting content created by industry professionals that improves moods and reduces symptoms
3. Bipolar Disorder Connect-Online forum for patients and user who have experience with bipolar disorder and allows the sharing of user comments with other users to promote social interaction
4. Moody Me-Collects and constructs mood enhancing slideshows with user provided pictures, documents and content.
5. Mental Illness-Informative app that has Doctor created content that allows patients to learn more about their conditions
6. iMind and Mood-simple diagnostic device that makes recommendations and suggestions for mood improvement based on user responses
7. BrainWave Tuner-shows 26 brain wave patterns, intended to alter mood and improve patient relaxation

List of Calendar Type Apps

1. iMood Journal-App that store user pictures and entries in order to record and predict manic and depressive periods.
2. eMoods Bipolar Mood Tracker-Allows users to record manic and depressive episodes in order to assist doctor and mental health professionals a more accurate diagnostic image
3. T2 Mood Tracker-App that records user entries to create mood profiles in order to prevent and recognize strong emotional periods.
4. Optimism-Charting app that shows users mood expectations based on previous user entries
5. Mood Track Private Diary-Allows the patient to enter moods and determine causes and triggers for strong emotional events based on individual entries

(C)

Market Laddering for Patients/Patient networks

	Patients	Support Circle
Emotional Benefits	Pride, hope towards the future.	Relaxation, feeling of strength from providing protection to patient
Consumer Rewards	Function, health member of society	Fewer stressful events in patients life
Product Benefits	Reduction of bipolar symptoms, better health, lower health care costs	Improvement of Bipolar patients health
Product Features	Software, service	Software, service