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| **COMP5206 Information Technologies and Systems**  **Group Proposal**  Personal Health Assistant Application Based on Virtual Assistant Technology——Koala Health Assistant  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY**  **DEVELOPMENT OF OBIKE SHARED BICYCLE MANAGEMENT SYSTEM BASED ON NEW IOT TECHNOLOGY** |
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**Personal health assistant based on Virtual Assistant Technology —— Koala Health Assistant**

# Executive Summary

Since Clayton Christensen first proposed the theory of disruptive innovation in 1995, disruptive innovation theory has been widely applied to the creation of innovative products by major companies and organizations, which have brought them enormous economic and social benefits.

Today, our team combines the disruptive innovation business theory with emerging virtual assistant technology to propose an innovative business solution– Koala Health Application, a personal health application based on virtual assistant technology.

The application uses proactive human-computer interaction to replace traditional passive human-computer interaction and provide voice input for food intake and exercise consumption detection data at the technical level. For the business model, the app is aimed at potential health-conscious but non-professional fitness populations, developing a user community by creating a new social model based on sports and diet, and cutting down some of the non-essential features of mainstream fitness and health software to break the traditional fitness and health applications market with low-end disruptive innovation, which can improve the product value and profitability.

Based on Lean Canvas business model, this paper proposes an innovative business model for this application through a large number of market research and analysis, including problems, solutions, key metrics and competitive advances and other modules in detail. Finally, this paper verifies the disruptive innovativeness of the application and discusses some specific aspects of disruptive innovation in detail using the Christensen’s disruptive innovation theory, which provides a professional blueprint for further commercial activities of the application.

# Problem Statement

## Market Prospects

It is no doubt that health issues in today’s world are getting more attention, because the rates of non-communicable diseases like diabetes, stroke, cancer and other risk factors that will lead disease like obesity, mental health disorders have increased for both children and adults for over past years (Health & Welfare, 2017). In addition, according to Healy (2015), half of Australians are fighting at least one chronic disease, with nearly 40% of Australians facing more than two chronic diseases at age 45 and above. Meanwhile, nearly 30% of Australian adults are overweight or obese because of lack of exercise and unhealthy diet (Gadd, 2018). Therefore, people are beginning to realize the seriousness of these diseases and start avoiding these risk factors and want to keep healthy habits. In addition, many people become physically active and start using the application of fitness and health with the aim of tracking weight loss and nutritional intake to maintain personal fitness.

In the past few years, many different types of technologies have emerged to help users keep up with fitness. Applications have become the most familiar tool for people to achieve a healthy lifestyle (Chung, Cook, Bales, Zia, & Munson, 2015). They can clearly document the movement process and analysis results to remind people how to maintain a good diet and lifestyle. At the same time, with the steady growth of the global fitness application market from 4090 million $ in 2014 to $6820 million in 2017. Analysts believe that in the next few years, the Fitness App market will be further expanded, expected in 2022 will reach $17250 million (Guo, Sharma, Yin, Lu, & Rong, 2017).

## Key Problems

As an increasing number of consumers is using mobile fitness and health application, in 2017 Statisca research claims that 42% of mobile phone users use at least one fitness software (Soeriaatmadja, 2017). However, in the long run, many of them are not attracting users' attention, which leads to the fact that although the functions of these applications are more professional and abundant, there is not much evidence show that they could improve health. To find out the problems of fitness and health applications on the market, our team uses literature research and collects and analyses app reviews. Here are some of the issues that most users have after using fitness app for a while.

1. Inconvenient record operation

Most fitness apps require users to manually enter specific information, such as enter the food they eat every day to calculate whether nutrient intake is balanced. In this case, it’s greatly reduces the user experience of the software because it is extremely inconvenient for users to constantly enter food name as well as select the food quantity. This is one of the reasons why users can't insist on using this kind of health software.

1. Losing motivation due to unsupervised

People were rarely working out for purely for themselves, they always have a reason for something other than fitness, which keeps them motivated. Currently, most powerful fitness apps are asking users to take the initiative. Although some applications create games or "check-in activities" to attract users, these are still passive interactions, users still lack supervision, especially active supervision.

1. Lack of social interaction support

According to health experts in behave, the support of friends and family is very important, especially when people try to change their lifestyles, such as taking a healthier diet or increasing exercise time (Zaharakis et al., 2018). Most of the fitness and health apps still do not provide users with a convenient and active community to promote communication. Although many apps have social features which allow users to share their achievement with their friends, these apps are unable to compete with social software.

1. Complex features cause high cost of use

Because most applications have professional features and wearable devices to get more accurate result of the user's health and fitness data. This leads to increased costs for the user, such as operational complexity and purchase costs. Initially, users used them to get a sense of freshness, but on the one hand they found that daily activities were not able to meet the requirements for using these features, they were designed for professionals. On the other hand, these devices need to analyse a large amount of data to ensure the accuracy of the user's activity results. Therefore, the operation of these wearable devices such as counting steps or measuring heart rate will accelerate battery consumption, and many users may not be able to complete the exercise because their mobile device has no power. As a result, many users gradually give up using fitness app.

## Existing Products

According to the latest market research, there are 60,000 fitness and health applications in the Android and IOS markets (Higgins, 2016), but none of them can completely solve all the problems raised above. Some of the most popular products on the market today have taken these issues into account and come up with quality solutions.

1. MyFitnessPal is an app that records daily food intake, the users can use barcode scanners to identify most foods and avoiding cumbersome manual input and making diet tracking easier. Meanwhile, it helps users automatically calculate the calorie and nutritional value of food through an easy-to-use daily food diary.

2. Moov Now has a real-time voice guidance that allows users to exercise directly in accordance with the voice commands in the app. In contrast, traditional sports coaches must import data in advance and analyse them before they can give training plans. Therefore, Moov Now subverts the routine and increases user interest and product usage.

3. Strava Is basically like Facebook for fitness that enhances competitiveness through rich social interactions. Although it can only record routes for cycling or running, users can share daily exercise status, comment on and give each other Kudos which keeps the user's interest.

# Business Idea

## Customers Segments

Our target users are people who have health needs but lack perseverance and who don't need too much professional fitness. Due to the above problems, these people may unwill or unable to stick to those fitness applications of market now but hope that our application can attract and retain these potential users.

Specifically, firstly, the targeted population is a person with health needs but lack of perseverance. a three-year survey of approximately 8,000 fitness records in the Boston area, it found that about 80% of fitness members pay a higher monthly contract than they use (Koehler, 2016), because many of them go to the gym less than five times a month, far below the average they think they will go. After analysis, the people who lack perseverance is the main cause of this phenomenon.

Secondly, the target population is those who really concerns about complex health data input. Gardner, A. K. describes that software availability is an important indicator of user experience, which means the design philosophy of the software should be convenient to users (Gardner, Lane, Stevens, Schlenker, & Schoolcraft, 2000). However, most of the current fitness and health applications require users to manually record various data, such as the name of the food, the intake of the food, and others. Many users cannot insist on using current fitness application because they are not willing to waste time to record the various information manually.

Finally, the user community includes people who do not need too many professional fitness functions. According to market survey, some application functions are too specialized will affect the experiences of most user groups (Keung, Lee, Lu, & O'Keefe, 2013), and only a small number of people can fully grasp the function of the application, because many people do not have time or are not willing to spend too much time and money to master professional software features, they think that these professional features are not useful to them.

Based on extensive market research, we identified the ideal user (early user) as a middle-aged worker with health needs but not professional fitness. From table 1, people over the age of 46 have formed the largest proportion about who don't use and can imagine using fitness apps. Also, most of them suffer from chronic diseases and obesity, and they don’t have a regular fitness habit, so they prefer to improve their health through a reasonable diet compared to fitness. In this case, we want to attract this type of people to use our app and hope to help them stay healthy.

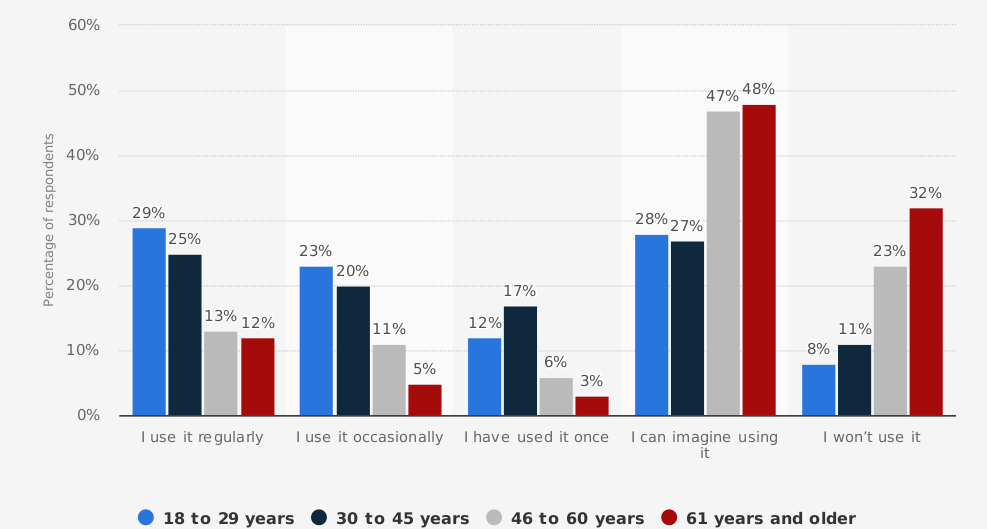


Table1. Percentage of U.S. adults who use an app to track their fitness in 2017

## Unique Value Proposition

Our application is designed to help people with health needs but not professional fitness to understand their diet, control the frequency of exercise, and further help them develop good eating habits and shape healthy bodies to avoid various diseases caused by health problems.

Our slogan is “Less is more”.

Firstly, the unique value of this app lies in its concise features. our app is concise and suitable for ordinary people which is not a special social group like a bodybuilder. Currently, most of the apps on the market are more complex and professional, which means these apps are not suited to most ordinary people, thus our app is just focuses on diet and exercise (only walking and running). Although some people may think that the function is too simple, it is very usable and universal. And according to Miller, J. (Miller & Coltman, 2014) , products with concise functions are more likely to attract customers. The function concise is not the same as the simple function, this aim to highlight the functions that the producers want to show.

Second, the unique value of this application is reflected in active voice interaction. This feature not only reminds users of their exercise plans in a timely manner, but also answers user questions through voice interaction, so that users are not alone during exercise. In addition, we will provide users with different sound selections to prevent users from being bored with a single sound. Moreover, the app private voice customization function, which means users can use the recording feature to record their favourite sounds, and the app will automatically convert those sounds into system sounds for the user to use. And we believe with these functions, a dramatic increasing number of users will use this app more actively and consciously.

Finally, the unique value of the app is that the app creates a social environment based on sports and diet. Compared to existing fitness apps that can only share status to other social media, our app has a complete social ecosystem that allows users to communicate with friends and share their moments about exercises and diet. In addition, we also provide a platform for users to share stuff with all people who use this software, thereby increasing their self-identity and further enhancing the popularity of our software.

Here is our “Minimum Viable Product” look like:

1. Dietary aspect: Add and modify food intake by voice & Get diet information such as calories
2. Sport aspect: Calculate running and walking information.
3. Active voice reminds you of your daily fitness.
4. Analyse daily calorie intake and consumption and suggest the fitness recommendation.

## Solution

Compared to existing applications on the market that help users exercise, our products use emerging virtual assistant technologies to solve problems such as lack of automation, no motivation, no community supports, and complex features.

Firstly, the application can actively communicate with the user. At present, the application software embedded in the voice assistant on the market requires the user to wake up using the wake-up word when needed, but the product not only does not need wake-up words to wake up, but also supports active prompts and communicates with the user. This feature solves the problem that the voice assistant can only communicate passively. Users no longer need to actively open the software record information every time, because the virtual assistant will actively communicate with the user and record information at any time. Moreover, the voice assistant can also help users quickly query various types of information and then tell the user by voice. Users do not have to spend time typing or choosing. Users can communicate while walking or eating, which is convenient and time-saving.

Secondly, voice input can help users who find it difficult to type and those who are lazy about daily recording. Because users only need to communicate with the application via voice, they can automatically record a variety of information. This allows users to avoid laziness, maintain long-term interest, and insist on recording various information every day. An active virtual assistant is like a private secretary. Users can not only communicate at any time, but also solve the problem that the user is not motivated to continue exercising or use the app to record. For example, the app will actively remind you to record the daily intake of food and exercise time so that the user can maintain the motivation to exercise.

Thirdly, most fitness applications still do not provide users with a convenient and active community to promote communication. This app provides the ability to view the sports data of friends, users can like and comment, and also has the function of sports ranking of friends. For example, the number of steps or the amount of exercise of the user's day. These invisibly stimulate the active exercise of the user.

Fourthly, the existing fitness app adds a lot of functionality, so the battery is very fast, and this application cuts most of the complex features and add-on modules, so the power consumption and price are very low.

## Channels

To increase the number of users of the application and promote the product, it’s extremely important to find and reach the target customers. The channels for our product are：

1. Advertising on social media. Today, a video world and people are more willing to spend time on watching video on social media. Therefore, we plan to advertise on related videos on social media platform (e.g. YouTube, twitch), which likes videos related with food, healthy diet and slimming. Besides, we will also advertise on search engine like Google.
2. Viral marketing. “The viral marketing is electronic word-of-mouth whereby some form of marketing message related to a company, brand, or product is transmitted in an exponentially growing way, often through the use of social media applications” (Kaplan & Michael, 2011). We plan to encourage target customers to promote our application by rewarding them, like offer them a free membership or discount if they recommend our application to their friends on social media.
3. Advertising on public transport system. As a large part of our target customers are office people and the most of them chose the public transport to avoid traffic jam during peak hours. The advertisement on bus and railway station will significantly Increase our application visibility.

## Revenue Streams

### Product Revenue Model

1. Ad-Based Revenue Model

At the time KHA owning sufficient customers, we start to provide advertising service for the specific website, service, app, or other product, and placing them on strategic, high-traffic channels, offering different types options like full launch-screen, banner and interstitial.

1. Subscription Revenue Model

The subscription revenue model entails offering our high-level customers service that client can pay for over the yearly fee for premium version, which possessing more advanced functions like:

1. Customized broadcast voice.
2. Access for all channels
3. No-Ads. Interface

1. Channel Sales (or Indirect Sales)

Standard version users need to pay for the channels they favoured according to the particularly segment. We offer the gym class and recipe for customers combining with voice assistant, which is capable to make suggestions and alerts depend on your body situation.

### Product Pricing Strategy

For the price strategy of this product, our team proposed mainly including Pricing at a Premium, Market Penetration and Bundle Pricing strategy.

The Application provides both high-value and low-price services for various customers by dividing the standard user and premium user. Premium market helps the Application to create a value perception, along with low-price pricing strategy, which tend to result in an initial loss of incomes. Moreover, low-end user acquires essentially free service from standard version which enlarging our customer base significantly. In addition, our team will use the Market Penetration Strategy and Bundle Pricing Strategy to increase user awareness by offering lower application and service prices to engage users. As time goes by, the increase in consciousness can bring profits.

### Core Revenue Analysis

For the application, the main features are affordable, initiative and High-quality Channel. As for our target customers, who are looking for effective and affordable virtual health assistant, expecting the application is capable to give health recommendation, providing affordable and high-quality instructions. These expectations meet our main features perfectly then other current health advisor applications like MyFitnessPal, Moov, Strava, etc. KHA provide better service with more affordable price, that is the reason our target client willing to pay.

### Specific Revenue Analysis

Our revenue mainly contributed by three parts: premium version fee, advertising fee and traditional E-commerce.

Figure 1. Revenue Analysis Map

About​ ​83%​ ​of​ ​Australians​ ​now​ ​own​ ​a​ ​smartphone​ ​where​ ​9% of​ ​users​ ​would download the health-related application,​ ​which​ ​is​ ​1.8 ​million​ ​user group (Doyle-Lindrud, 2014). As our application’s target customers are those who own the health need but lack of persistence, the total potential user number would be 0.05 million to 0.1 million.

### Monthly Access fee & Premium Version fee

The first-time user will have 1-month free trial, which is able to access all courses and functions, gradually accumulating customers base on free experience to update to the standard or premium version. After a month, we would charge the client periodically, customers pay for the premium version with 30$ annually. The standard version remains free for every customer.

The table below shows the maximum prediction of the revenue at the early stage.

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Annually Access fee | Potential users | Potential profit |
| Standard | 0 | 0.08m | 0 |
| premium | 30.0$ per year | 0.02 million | $600,000 |

Table 2. Premium Version Fee

### Advertising

At the time we gain sufficient client and data traffic. Services​ ​of​ ​advertising​ ​started​ ​provided​ ​to​ ​the​ ​stores​ ​related​ ​to gym, health product, Sports Brand. The charge is based on data traffic of KHA. According to the previous research from (Mishra, Umakanta, 2018), the average price from mobile platform advertising is 900$ per day if basic user amount reached 0.3 million.

The table below shows the maximum prediction of the revenue at the early stage.

|  |  |  |  |
| --- | --- | --- | --- |
| Ad. type | Price | Estimated client | Estimated profit |
| Full launch-screen | 1500$ per day | 10 | 1500\*365= $ 540,000 |
| banner | 300 $ per day | 20 | 300\*365=$ 100,000 |
| Interstitial | 700 $ per day | 5 | 700\*365=$ 700,000 |

Table 3. Advertising Fee

### Traditional E-commerce

We sell some measuring equipment such as heart rate table, calorie calculator and body weight scales etc. online, which helps the user to supervise and measure their health, dietary data better. More precise data user provided, more appropriate advice the application gave. Data showed that above 60 % of people quit recoding health data by lack of useful measurement. The profit by selling these to customers contribute to the last part of the application profit. As we predicted target customer reached $0.5 million, the average expenditure for each online buyer equals $150. Estimated 10% of total potential customer would buy merchandise from our application. The expected revenue would be:

150\*10%\*500, 000, which is $0.75 million.

### Channel Access Fee

Our application may sell the sports course and healthy recipe towards standard version users, which require a single pay for permanent use. We estimate approximately 50% of standard user would purchase channels, which is about 0.04 million users potentially.

|  |  |  |  |
| --- | --- | --- | --- |
| Category | Access price | Potential client | Potential profit |
| Sport Course | $ 3.0 each | 10000 | $ 30000 |
| Healthy Recipe | $ 2.0 each | 30000 | $ 60000 |

Table 4. Channel Access Fee

Table 5. Percentage of Total Revenue

## Cost Structure

The most important cost of the application consists of expend on marketing, cloud service and staff salary.

1. Marketing expends mainly includes costs spending on advertising and product promotion. In order to attract people to download and using the application, expend on advertisements and viral marketing.

2. For the project, as demand is unknown in advance, we plan to use various cloud services to avoid Over-provisioning or Under-provisioning happening. Using cloud services helps to ensure the electricity of IT resource usage and cost control.

3. Expends on human resources would be the major cost of our project as now the salary of IT staff is pretty high, and it’s implemented for us to own skilled technical staff to make the application run well.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Marketing | Technical Human resource | Cloud & Equipment |
| First Year | $ 500,000 | $ 1,310,000 | $ 200,000 |
| Second Year | $ 500,000 | $ 2,000,000 | $ 300,000 |
| Third Year | $ 500,000 | $ 3,000,000 | $ 400,000 |

Table 5. Cost of the structure

|  |  |  |
| --- | --- | --- |
| Position | Salary Per Annum | Number |
| IT Project Manager | $150,000 | 1 |
| Technical Leader | $140,000 | 1 |
| Virtual Assistant Engineer | $100,000 | 2 |
| Android Software Engineer | $100,000 | 3 |
| IOS Software Engineer | $100,000 | 3 |
| Test Engineer | $110,000 | 1 |
| Database Specialist | $110,000 | 1 |
| Total | $1,310,000 | 12 |

Table 6. Staff Salary table

## Key Matrices

The success of Koala Health Assistant is measured when:

* The number of times that KHA is downloaded above 1 million
* The number of purchased user reaches 0.1 million
* User retention rate over 70%
* As an assistant application, users are willing to open KHA at least 3 times a day for recording and inputting data
* Health recommendation and alarm optimize more than 30% users body situation

### Breakeven Analysis

|  |  |
| --- | --- |
| * Total Investment | $2M |
| Monthly Raw Revenue  （40% of raw revenue will be used for advertising and marketing） | $0.2M |
| Monthly Net Revenue | $0.14M |
| ROI | 14 months |

Table7. Total Investment

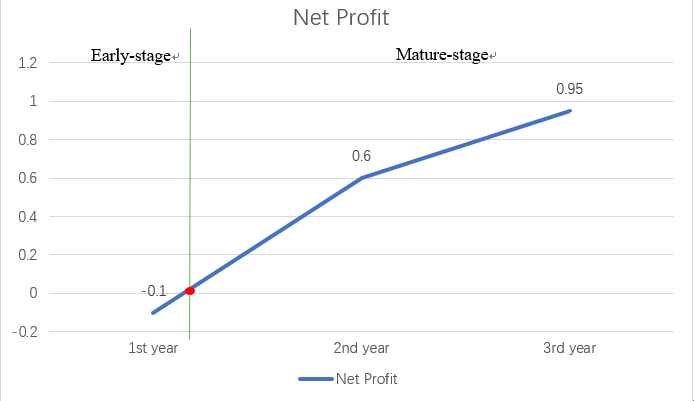


Figure 2. Breakeven Analysis

As the above table shown, after 14 months we will reach the breakeven point. The mature stage starts, the time we will keep enlarging our user's scale. So that, the profit derived from advertising and access expected to increase 20% per year. According to the cost structure, the whole 3 years net revenue demonstrate on the below.

## Unfair Advantage

For existing competitors or potential entrants, the competitive advantage of this product is as follows. The first is the product's advanced active voice interaction technology, which provides the ability to actively communicate with the user and does not require the user to wake up with wake-up words. The process of voice interaction includes speech recognition, natural language understanding, dialogue management, natural language generation, and speech synthesis. Dialogue management is equivalent to the decision-making layer, including conversation state tracking and dialogue plan selection. Natural language understanding and natural language generation constitute natural language processing, which is equivalent to the cognitive layer. Speech recognition and speech synthesis are similar to the functions of the perceptual layer. This technology makes this product smarter and more efficient and is one of the reasons why other voice assistants can't compete with it.

Secondly, the product has precise automatic speech recognition technology, including voice activation detection, feature extraction, recognition modelling and decoding. The speech recognition technology of this product uses multi-channel signal processing, ‘6+1’ microphone array; and supports speech separation when multiple people speak. These bring a better experience to the user.

Third, it provides a unique and healthy social platform that allows users to share their sports status and sports feelings in formats such as text images and videos. This feature not only enhances the user's motivation to exercise, but also increases interaction with friends, which is rare in current fitness and health applications on the market.

# Disruptive Innovation Discussion

## Disruptive Business Idea Analysis

According to Christensen's concept of disruptive innovation (Christensen, Raynor, & McDonald, 2015), a new product judged as disruptive innovation rather than sustaining innovation, should meet the three typical characteristics of disruptive innovation, large uncertainty, disruptive and profitable. Combined with our product analysis, for the product uncertainty. The market demand for our products is not aimed at the mainstream users of the current health and fitness application market - fitness professionals and enthusiasts, it is a breakthrough for the development of those people who have health need but non-fitness enthusiasts in the potential market. The uncertainty of this application is reflected in two aspects: technical uncertainty and market uncertainty. The uncertainty of technology is reflected in the use of the merging "virtual assistant" technology, from passive interaction to active interaction. The uncertainty of the market is that the product cannot meet the existing fitness enthusiasts and professional groups, but to meet the market demand of potential users - non-fitness enthusiasts.

The second feature is disruptive. The product's disruptive innovation is not only a simple improvement, but a leap forward. It transforms traditional passive communication (users ask, virtual assistant answers) to active communication (virtual assistant asks, user answers), which marks the new virtual assistant design concept, so it is disruptive.

The third feature is profitability. By tapping the potential market and combining advanced profit models, the product will also be more profitable than traditional health virtual assistant products.

## Type of Disruptive Innovation

According to Christensen's disruptive innovation 3D model analysis, disruptive innovations include two different types of disruptive—low-end and new market (Christensen et al., 2015). For this application, there are already some similar products in the fitness and health virtual assistant market, such as Xiaomi Smart Health Assistant and Moov Now (Li, He, Huang, & Xie, 2018). Therefore, this product does not generate a new value network, it is not a new market disruptive. In contrast, this product is rooted in the mainstream fitness and health application market, cutting off a large number of professional services and functions for mainstream fitness and health management software, such as anaerobic motion detection and motion guidance. This product is only focused on the general population, retaining the basic functions of calorie intake and consumption record and analysis for non-professional fitness people. It takes a low-cost business model that cuts non-essential functions, thereby mainly to obtain development space by destroying the original virtual health assistant market. Therefore, this product belongs to low-end disruption.

## Potentially Consumer Market in Australia

The product will disrupt Australia's original fitness and health software market. According to a British medical innovation company, there are currently more than 60,000 different types of health applications worldwide (Boudreaux et al., 2014). At present, the mainstream fitness health software in the Australian market includes Calm, MyFitnessPal, 8fit and so on. Research and analysis of these mainstream fitness health software, pointing out that they are large and versatile, mainly for professional fitness people, the content focuses on professional fitness movement monitoring and guidance. However, our application was originally designed for people who are neglected by mainstream fitness and health software - non-professional fitness people, for them to record and monitor the general daily diet and activities, let them experience a simple and fast health management assistant experience, so it will disrupt the tradition Australian Health Fitness Virtual Assistant Market. In addition, the voice assistant of the mainstream fitness health software uses a passive interactive mode, which increases the time and operating cost of recording exercise and diet intake, while our products use an active interactive mode to actively ask users to add exercise and diet records to optimize the record and improve user efficiency. Therefore, its interactive model for potential users and innovation will inevitably disrupt the Australian fitness and health software market.

## Inferior Aspects of the Solution for the Mainstream Customers

At present, mainstream users, including fitness professionals and fitness enthusiasts, will find it impossible to meet all fitness needs because it only provides basic aerobic exercise recording and detection, and does not provide more features such as anaerobic recording and testing. In addition, the product lacks action guidance for sports and does not meet the needs of mainstream fitness people. Therefore, mainstream customers in the current market may not be optimistic about this product.

## The Difference in Business Model

Thames defines business model as a complete product, service, and communications, including each participant and the role it plays in it, as well as the potential benefits of each participant and the corresponding source and manner of revenue (Mont, 2002). The business model of the product is different from the business model of mainstream health fitness software that diversifies into professional functions with personal health data. The product's business model is a non-professional model that favours sports and diet, attracts non-fitness enthusiasts and lazy people planning their own sports diet to create a virtual fitness assistant for healthy sports diet management and social models. The profit model of this product is also different from the profit model of mainstream health fitness software - personalized custom advanced function service. In addition to some traditional e-commerce, advertising, and paid content, this product also includes the value of the product social users themselves for other users and for the platform.

## Improvements in Emerging Technology

For mainstream health fitness software users, daily cumbersome dietary intake and exercise records can add a lot of operation and time costs to users, especially in terms of recording diet. Mainstream users must use text to input the intake of each food. With the emergence and development of virtual voice assistant technology, mainstream users can use voice to record dietary intake and exercise data.

In addition, the virtual voice assistant can remind the user to record data, which will reduce the problem that mainstream users are lazy to record and eventually give up the software. The active interactivity of the virtual assistant guides and enhances the interaction between the user and the virtual assistant, helping mainstream users develop daily habits of recording diet and exercise, and truly monitoring daily health data.

# Reference

Boudreaux, E. D., Waring, M. E., Hayes, R. B., Sadasivam, R. S., Mullen, S., & Pagoto, S. (2014). Evaluating and selecting mobile health apps: strategies for healthcare providers and healthcare organizations. *Translational behavioral medicine, 4*(4), 363-371.

Christensen, C. M., Raynor, M. E., & McDonald, R. (2015). What is disruptive innovation. *Harvard Business Review, 93*(12), 44-53.

Chung, C.-F., Cook, J., Bales, E., Zia, J., & Munson, S. A. (2015). More than telemonitoring: health provider use and nonuse of life-log data in irritable bowel syndrome and weight management. *Journal of medical Internet research, 17*(8).

Doyle-Lindrud, S. (2014). Mobile health technology and the use of health-related mobile applications. *Clinical journal of oncology nursing, 18*(6).

Gadd, J. (2018). Navigating the highs and lows of early career nursing. *Australian Nursing and Midwifery Journal, 26*(3), 18.

Gardner, D. K., Lane, M., Stevens, J., Schlenker, T., & Schoolcraft, W. B. (2000). Blastocyst score affects implantation and pregnancy outcome: towards a single blastocyst transfer. *Fertility and sterility, 73*(6), 1155-1158.

Guo, L., Sharma, R., Yin, L., Lu, R., & Rong, K. (2017). Automated competitor analysis using big data analytics: Evidence from the fitness mobile app business. *Business Process Management Journal, 23*(3), 735-762.

Health, A. I. o., & Welfare. (2017). Weight loss surgery in Australia 2014–15: Australian Hospital Statistics.

Healy, K., Harrison, G., & Foster, M. (2015). Job satisfaction and workforce retention of newly qualified social work and community services workers: An Australian pilot study. *Advances in Social Work and Welfare Education, 17*(1), 8.

Higgins, J. P. (2016). Smartphone applications for patients' health and fitness. *The American journal of medicine, 129*(1), 11-19.

Keung, C., Lee, A., Lu, S., & O'Keefe, M. (2013). *BunnyBolt: a mobile fitness app for youth.* Paper presented at the Proceedings of the 12th International Conference on Interaction Design and Children.

Koehler, W. S. (2016). Fit as a fiddle: a longitudinal case study of an early-stage social entrepreneurial venture in the fitness industry. *Journal of Ethics & Entrepreneurship, 6*(2), 63.

Li, Y., He, J., Huang, G., & Xie, Z. (2018). *Development Status and Trends of Wearable Smart Devices on Wrists.* Paper presented at the International Conference on Cognitive Computing.

Miller, J. M., & Coltman, D. W. (2014). Assessment of identity disequilibrium and its relation to empirical heterozygosity fitness correlations: a meta‐analysis. *Molecular Ecology, 23*(8), 1899-1909.

Mont, O. K. (2002). Clarifying the concept of product–service system. *Journal of cleaner production, 10*(3), 237-245.

Soeriaatmadja, K. (2017). Consumer Tribe dan Industri Gaya Hidup di Bandung, Indonesia. *Jurnal Keamanan Nasional, 3*(1), 149-166.

Zaharakis, N., Mason, M. J., Mennis, J., Light, J., Rusby, J. C., Westling, E., . . . Way, T. (2018). School, Friends, and Substance Use: Gender Differences on the Influence of Attitudes Toward School and Close Friend Networks on Cannabis Involvement. *Prevention Science, 19*(2), 138-146.

# Appendix

