POLITECNICO DI TORINO

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GoodLife: the development of an ecosystem to support healthy lifestyles

Supervisor:
Prof. Maurizio Morisio

Candidate:
Fabio Ortalda Cena

Abstract

Now more than ever, digital technologies have always played an increasingly important role in business sectors related to health protection, both in the public and private sectors. In particular, the constant spread of mobile devices and online platforms, starting with social networks, is today a new challenge for brands operating in the medical sector.
Health apps are increasingly popular in the world, especially in the United States, and may one day keep us further away from hospitals.

The main goal of this thesis is to help people become more aware of their health and the importance of a healthy lifestyle. The need for a healthy life is a need today very felt, because if on the one hand medicine has made leaps and bounds and today cures many once deadly diseases, on the other hand bad eating habits, sedentary lifestyle, stress, they have become 'new diseases' and affect society quite severely. Obesity, for example, is considered a real epidemic, and is among the main causes of mortality. This obviously entails an individual, social and health cost.

Therefore, this thesis presents a revolutionary application in the field of health. First, the main *"secrets of longevity"* are exposed in order to be implemented in the technology that will be developed. Subsequently, a holistic market analysis was conducted about the main existing applications, the main themes on which they specialized and their business models. After comparing the key points in common and the proposed objectives, it was created at the conceptual and economic level, as set out in the title *GoodLife*.

Technology can help the human being to have proper lifestyles, and this is the reason for the birth of this application that help to run, eat, sleep, meditate, fight back pain or headaches, manage anxiety.

Dedications

For all the people who believe in me.

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Chapter 1

1.Motivation and Goals

1.1 Motivation

The greatest wish of this thesis is to discover a way to improve people's quality of life and at the same time find the secret of longevity.

The path starts from a deep and complete analysis of the world of applications which aim is to help people *living better*. In this thesis, a connection between the world of technology and the correct daily habits will be created.

Mobile phones and electronic devices such as smartwatches have become a part of the human body and are often seen as an addiction or something that distracts from the reality. Too often people waste a lot of time on applications that do not have a real utility, but only distract the user. So why not use this time and use it more efficiently?

In addition to general reasons there are also personal ones. Due to a genetic disease, I am forced not only to lead a perfect lifestyle with habits, but also to make periodic examinations to monitor health conditions. Therefore, the desire to find a solution that can help all people like me is the strongest motivation there is.

1.2 The problem statements

This thesis addresses these research questions:

- How can technology be used to improve the quality of life?
- What are the existing solutions and how could they be improved?
- How to make the market with GoodLife?

1.3 The solution

In the next chapters, this thesis will answer to previous statements, proposing a technological solution with a motivational application with interesting ideas to improve people daily lives, thanks to the fact that all of us always have the phone in hand, to make people embrace new healthier habits.

Leading an adequate lifestyle is not only good for the physical, but also for the mind of the human being both in social relations and in everyday life. In many cases, there is a lack of real knowledge about how to lead a healthy and balanced life and therefore having a virtual coach every day can be an important turning point.

This new virtual coach is *GoodLife.*

1.4 The structure

The thesis is divided into the following chapters:

- *Chapter 2*, which deals with the method of Professor Luigi Fontana and presents a scientific and medical analysis focused on the best habits and lifestyles to lead.
- *Chapter 3,* which presents a market analysis of similar existing applications focused on the themes highlighted by the Fontana's method and their business models.
- *Chapter 4*, which presents two other cases and their business models that can influence some important aspects of GoodLife, such as the training of professionals.
- *Chapter 5,* which presents the development of GoodLife and its business model.
- *Chapter 6,* which reports final considerations and future works.

Chapter 2

1. Luigi Fontana's Method

1.1 Biography

Professor Luigi Fontana is a world leader in the field of nutrition, physical exercise, and healthy longevity in humans. His pioneering studies on the effects of dietary restriction, fasting and diet composition have opened a new area of nutrition-related research that holds tremendous promise for the prevention of age-related chronic illnesses and for the understanding of the biology of human ageing. Professor Fontana has worked in some of the great medical institutions around the world like Washington and the Italian National Institute of Health in Rome. His career moves to the University of Sydney too.

Professor Fontana has published many academic papers in prestigious journals, including Science, Nature, Cell, New England Journal of Medicine. He has presented his work at more than 250 international conferences and top medical schools and research institutes around the world.

As one of the few physician scientists active in the fields of healthy ageing, nutrition, exercise, and metabolism, interacting with patients both in the clinic and in the experimental trials that he designs and conducts, Professor Fontana understands not just the practical effects of changing behaviors, but the physiological and molecular mechanisms underlying those changes. He is interested in empowering people to maximize their health and wellbeing. He also has a keen interest in the role of nutrition in promoting the ecological health of the world on the beneficial role of efficient use of food and energy in promoting human, environmental, and planetary health, and sustainable economic development.

1.2 The concept and steps

Professor Fontana believes that it is urgent that people begin to take a *prevention-based* approach to health, not a *disease-based* one. People can make choices that will set themselves up for long, healthy, and happy lives, while contributing to the protection of the environment. Those already suffering from chronic conditions, such as obesity, hypertension, diabetes, heart disease, cancer, autoimmune and allergic disorders, and emotional and psychological distress, can also make positive changes that will have a beneficial influence on their lives now.

Perhaps the changes that must be made to health and economic systems around the world could be made more easily if individuals were aware of just how much control each of us has in preventing a wide range of physical, mental, and spiritual afflictions that cause so much suffering in later life. What Professor Fontana illustrates in his plan is what each person wants to be: disease-free, pain-free, and capable of doing what we enjoy for as long as possible, ideally for our entire lives.

Figure 1: Luigi Fontana's plan

The problem is that people are constantly bombarded with information that bring them to work hard to accumulate material objects, sacrificing precious time to the care of the body and the development of the creative and spiritual mind.
Too many people no longer know how to prepare healthy meals with which to feed and prefer out of laziness or ignorance to have breakfast at the bar, lunch in the cafeteria or in a fast-food restaurant. An impressive number of hours are spent watching television, playing video games, or chatting on the net, but it's hard to find time to exercise, think or meditate.

According to Fontana, aging and age-related diseases are complex processes, regulated by an intricate network of metabolic and molecular mechanisms still only to a small extent known and understood. People cannot intervene on this network only with chemicals or gene therapies, which risk upsetting a delicate balance.
Progress in public health and in the treatment of acute and chronic diseases, like antibiotics, antihypertensive and hypolipidemic drugs, aortic-coronary bypass, surgery, have led to an extension of life expectancy, which in the last forty years has grown by three months a year. Most elderly people take medicines daily, often more than one, and drugs that protect against the harmful effects of others.
Moreover, today it is announced, in Italy as in the United States of America, that life expectancy has stopped growing: technological and pharmacological progress no longer seems to be able to combat the increase in chronic diseases caused by the degradation of lifestyle and the environment.

However, there is more and more scientific evidence that indicates how appropriate nutritional choices and physical exercise, associated with cognitive training techniques, breathing and meditation, are essential to slow aging processes, promote healthy longevity, prevent chronic diseases typical of today.

1.3 The twelve precepts

Professor Luigi Fontana has identified twelve main points for the promotion of well-being, health, and longevity. They are:

- *Reducing waist circumference*, increasing muscle mass especially the iliofemoral one.

- *Moving as much as possible*, limiting the time I spend sitting, perform at least one physical exercise every day and you have to alternate aerobic exercises with those of endurance.

- *Consuming a healthy diet*, with whole foods, proteins of plant origin, limiting the refined foods, little salt...

- If *overweight*, adopt healthier eating and fitness behaviors.

- *Limiting the consumption of alcohol.*

- *No smoking.*

- *Daily exposure to the sun,* but in moderation, avoiding lamps, sunbeds, and using sunscreens with high protection.

- *Sleeping well* at least 7 hours per night.

- *Nourishing and cultivating the mind*, never stopping learning, and keeping the brain always in training prevent mental discomfort.

- *Cultivate friendships and brotherhood* by being altruistic

- *Dedicating time to meditation* to relax the mind trying to live in the present and with nature.

- *Loving and respect for nature*.

1.3.1 The questions

This project tries to find practical solutions and answers to these questions:

- What are the secrets of longevity?

- What means do people have to keep themselves healthy, creative, and happy?

- In which activities could people invest the time and energy to enrich themselves and become better human beings?

- What can people do for the world to make it healthier, more livable and cleaner?

2. Fitness concept

Physicians and scientists have been debating for centuries how important *fitness* and *exercise training* are for promoting health and longevity. Accumulating evidence indicates that exercise training is essential for maximizing metabolic health and wellbeing but does not promote exceptional longevity. From an Olympics' research, athletes show that though on average they live three years longer than sedentary people, this is not sufficient to allow them to reach centenarian status. Most of athletes in this large study, born between 1900 and 1904, died aged around 80, even though they led healthier lives even after the end of their competitive career. An athlete normally does not smoke, follows a controlled diet (high in calories though) and has a good, or even excellent, quality of life.

Overweight and obesity, due to excessive calorie and protein intake, as we will see, are major risk factors for premature death and for many of the most common chronic illnesses. Powerlifting professional athletes also have a higher mortality rate, especially those who have taken anabolic drugs.

2.1 Training sessions

Exercise training has profound effects on brain health, helping protect memory, enhance attention, thinking skills and the ability to process information both in young and older adults. The deterioration of brain structure is typical of ageing but performing high levels of exercise seems to attenuate the age-dependent degeneration of grey and white matter in the prefrontal and temporal cortex, areas that regulate working memory and executive functions. Data from a trial have shown that one year of aerobic exercise training can even increase the volume of the hippocampus, an area of the brain involved in memory. In other words, exercise training powerfully counteracts the brain fog that comes with age and helps prevent cognitive decline.

Usually, a good training workout program should allow you to gradually increase:

- intensity, how much weight or force you can lift or generate;
- repetitions, how many times you lift a weight or do a push-up;
- sets, the number of cycles of repetitions that you can complete.

2.1.1 Aerobic exercises

Aerobic exercises, often called *cardio*, are walking, jogging, running, cycling, skiing, skating, dancing, and swimming, but also team games with a ball and circuit training. Basically, all those that get our heart and sweat glands pumping.
During these rhythmic and repetitive activities involving primarily the large muscle groups of the lower limbs, the heart rate and breathing rate are increased for extended periods. This supplies the muscles with nutrients and oxygen to produce energy. The faster is the rate, the more oxygen and energy substrates that are required. Therefore, the heart and the lungs must work faster to bring oxygen and nutrients to the muscles.

Epidemiological studies suggest that aerobic exercise training is associated with a reduced risk of developing many different cancer types, but in particular breast, colon and endometrial. It can even help in improving their prognosis. For example, breast cancer studies suggest that 30–40 minutes per day of brisk walking can reduce mortality by 50 per cent. Ideally, people should train two or three times per week, with a variety of exercises that stimulate all the major muscle groups (abdomen, chest, back, shoulders, arms, hips, and legs). Mastering key bodyweight exercises will improve strength, stability, mobility, and motor control of all the major muscle groups.

If the primary goal is to increase muscle mass it is better to use heavier weights, but with a lower number of repetitions. But if the goal is to tone up muscles and increase the control and coordination of muscles, then, use lighter weights, but with many repetitions. For instance, young and healthy people, who want to gain muscle mass, can repeat a single movement from six to eight times per muscle group.

Moreover, it is essential to check the posture. Poor posture may result in serious damage to the muscles, spine, and joints. It is also important to rest for 48 hours between sessions to allow muscles to recover, grow and strengthen.

2.1.2 The VO2max test and Heart Rate

The *VO2max test* is the gold standard to establishing training intensity, but its use is impractical, time-consuming, and expensive for everyday use. A useful substitute is monitoring our heart rate during exercise. In fact, maximal heart rate and VO2max are correlated in a predictable manner independent of age, sex, race, fitness level or training mode.

The calculation is based on a combination of personal historical information and data collected during sports activities through devices like smartwatches. This includes a focus on heart rate and pace. Motion speed and heart rate data are used to investigate the relationship between internal and external workloads; in other words, how hard your body is working to produce your performance.

FEMALE

(values in ml/kg/min)

Age	Very Poor	Poor	Fair	Good	Excellent	Superior
13-19	<25.0	25.0 - 30.9	31.0 - 34.9	35.0 - 38.9	39.0 - 41.9	>41.9
20-29	<23.6	23.6 - 28.9	29.0 - 32.9	33.0 - 36.9	37.0 - 41.0	>41.0
30-39	<22.8	22.8 - 26.9	27.0 - 31.4	31.5 - 35.6	35.7 - 40.0	>40.0
40-49	<21.0	21.0 - 24.4	24.5 - 28.9	29.0 - 32.8	32.9 - 36.9	>36.9
50-59	<20.2	20.2 - 22.7	22.8 - 26.9	27.0 - 31.4	31.5 - 35.7	>35.7
60+	<17.5	17.5 - 20.1	20.2 - 24.4	24.5 - 30.2	30.3 - 31.4	>31.4

MALE

(values in ml/kg/min)

Age	Very Poor	Poor	Fair	Good	Excellent	Superior
13-19	<35.0	35.0 - 38.3	38.4 - 45.1	45.2 - 50.9	51.0 - 55.9	>55.9
20-29	<33.0	33.0 - 36.4	36.5 - 42.4	42.5 - 46.4	46.5 - 52.4	>52.4
30-39	<31.5	31.5 - 35.4	35.5 - 40.9	41.0 - 44.9	45.0 - 49.4	>49.4
40-49	<30.2	30.2 - 33.5	33.6 - 38.9	39.0 - 43.7	43.8 - 48.0	>48.0
50-59	<26.1	26.1 - 30.9	31.0 - 35.7	35.8 - 40.9	41.0 - 45.3	>45.3
60+	<20.5	20.5 - 26.0	26.1 - 32.2	32.3 - 36.4	36.5 - 44.2	>44.2

Figure 2: Classification of VO2max values for male and female

2.2 Physical activity and cardiovascular risk

The following curve in the graph shows the relationship between physical activity and cardiovascular risk. A similar increase in physical activity yields different risk reductions across the activity spectrum. Physical inactivity is associated with the highest risk, whereas high aerobic exercise. The physical activity volume is associated with a lowest risk.

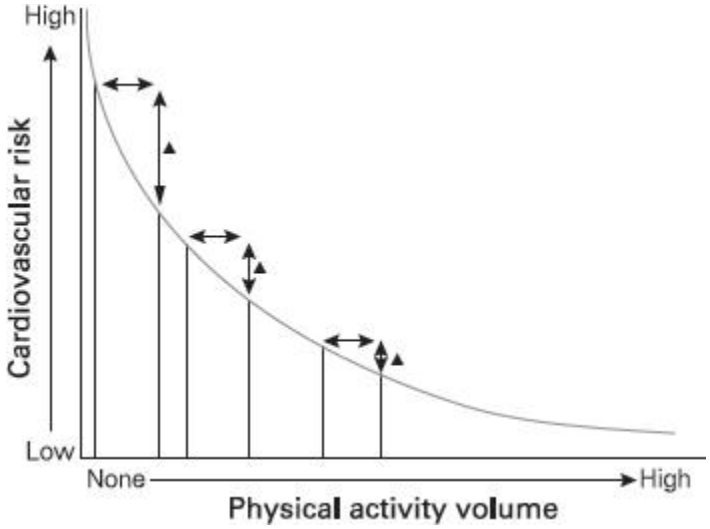

Figure 3: Physical activity linked to cardiovascular risk

To exemplify the importance of maintaining an active lifestyle, new studies suggest that prolonged periods of inactivity – for instance, the number of hours per day spent in a sitting position to watch television or work at a computer – are associated with an increased risk of developing and dying from cardiovascular disease, cancer, and diabetes mellitus regardless of the degree of obesity and the number of exercise sessions held during the week. Therefore, to improve the metabolic health and reduce the risk of dying prematurely, people must move as often as possible, to take frequent breaks at work and limit the amount of time we spend in a seated position. Ideally, people should be able to find at least 30 minutes a day to work out: these are sufficient to provide some metabolic and psychological health benefits. Additional paybacks can come from engaging in more vigorous and prolonged aerobic exercise or short bouts of high-intensity interval training during the weekend.

3. Food concept

More and more research confirms that people eating style affects health, longevity and the quality of their life. As already said, increasing in healthy living is truly the goal desired by all. In fact, no one wants to live long in conditions of suffering. However, one of the keys to doing this is to start working on your health before you lose it, beginning from the nutrition.

3.1 Calories and lifespan

Data from studies conducted in laboratory rodents and monkeys found that calorie restriction increases longevity by preventing or delaying the occurrence of most chronic degenerative diseases associated with ageing. For instance, a 15–53 per cent reduction in calorie intake causes an equal linear 20–62 per cent reduction in incidence of cancer, one of the main causes of death. The protective effect is so powerful that it is also effective on tumors that have been induced by radiation and carcinogenic chemicals.

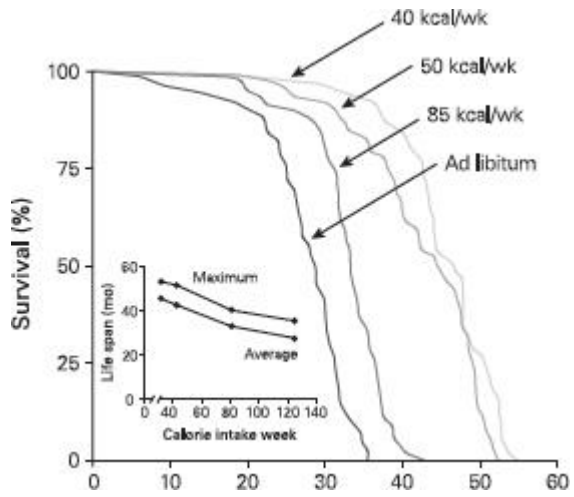

Figure 4: Relationship between calories and lifespan in mice's trial

The amazing finding is that a third of these long-lived animals do not develop any signs of disease.

People need to be careful not to overdo calorie restriction; it can be dangerous, especially if people don't know what they are doing. Excessive calorie restriction can cause side effects, such as increased cold sensitivity, lower libido, menstrual irregularities, and excessive loss of bone mass. It is also likely the calorie requirements needed to maximize health vary from person to person, and by factors like age, gender, levels of physical activity and genetic constitution.

Recent experiments indicate people probably don't need to undergo a severe regimen of calorie restriction to live a long and healthy life. A combination of other less drastic interventions may lead to similar or better results.

3.2 Mediterranean diet

The Mediterranean diet is mainly focused on the correct choice of food, while the caloric aspect plays a secondary role. Sobriety and moderation of portions are however an essential element for the correct application of this diet. As an indication, an adult man would need every day about 2,500 calories, of which 55-65% should come from carbohydrates, 20-30% from lipids and only 10-15% from proteins.

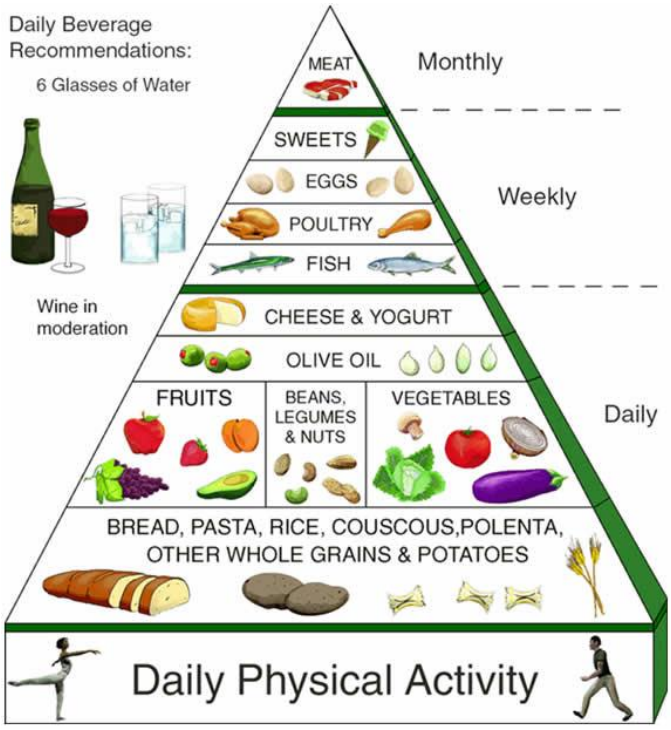

Figure 5: Mediterranean diet pyramide

The most important principles of the Mediterranean diet are:

- higher consumption of vegetable proteins than animal proteins;
- reduction of saturated animal fats in favor of unsaturated vegetable fats;
- moderation of the global caloric quota;
- increased complex carbohydrates and strong moderation of simple ones;
- high intake of dietary fiber;
- reduction in the intake of cholesterol;
- the consumption of white meat is prevalent compared to red meat, and is however limited to one or two times a week, while the consumption of fish and legumes is higher;
- sweets are consumed only on special occasions;
- a drastic reduction in the consumption of sausages, super alcohol, white sugar, butter, fatty cheese, mayonnaise, white salt, margarine, beef and pork, lard and coffee.

3.2.1 Proteins

The claims that high *protein diets* or protein-fortified foods are important for building muscle mass and reducing muscle wasting during weight loss or ageing is also another scientifically unsupported myth. It is true that consuming a high-protein diet can reduce muscle loss during weight loss, but the effect is very small and, most importantly, can have serious detrimental effects on metabolic health. Eating more protein than what is needed, therefore, will not increase muscle mass, but will accelerate ageing and increase the risk of developing many chronic diseases. A growing body of data demonstrates that high protein intake in humans is unhealthy, correlating with an increased risk of diabetes and cardiovascular disease. The risk of developing type 2 diabetes has been estimated to increase by 20–40 per cent for every 10 g of protein consumed in excess per day. Some epidemiological studies even suggest that high protein intake may increase overall mortality.

In one study of 6381 adults from the National Health and Nutrition Examination Survey, men and women aged 50 to 65 who consumed a high-protein diet had a 75 per cent increase in overall mortality and a four-fold increase in cancer and diabetes mortality during the 18-year follow-up.

The proteins can be of two types:

- *animal*, like meat, eggs and cheese do contain all the required amino acids;
- *plant*, like chia seeds and tofu.

Finally, epidemiological data suggest that substituting plant protein for animal protein is also associated with lower mortality.
In particular, the risk of death from all causes among participants of Harvard's Physician and Nurse Health Studies was 34 per cent lower when 3 per cent of energy from plant protein was substituted for an equivalent amount of protein from processed red meat, 12 per cent lower for unprocessed red meat, and 19 per cent lower for egg.

3.2.2 Eating meat

For many people, meat is considered a staple food, with some eating either beef, chicken, lamb, pork, ham, salami, bacon, or sausages daily, often several times a day. This alarming trend has dire consequences not only for human health, but also for environmental health and animal welfare.

Epidemiological data suggest that an high consumption of meat, specially red meat, is also associated with higher mortality caused by cancer.

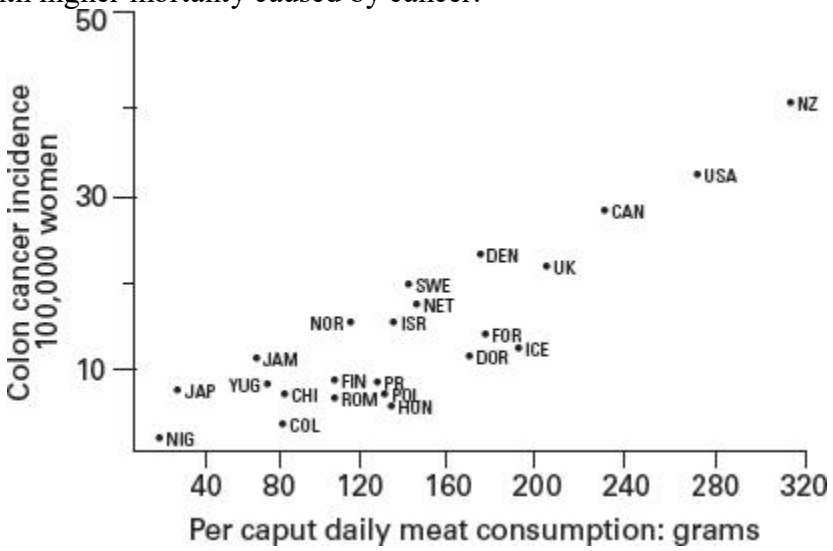

Figure 6: Correlation between meat intake and colon cancer

3.2.3 Carbohydrates

Foods rich in *carbohydrates* are cereals like wheat, rice, maize, barley, millet, oats, rye, triticale and sorghum, starchy vegetables like potatoes, corn, rice, fruits, beans, sweets, soft drinks, honey and, of course, brown, and white table sugars. Sugars are simple and starches are complex carbohydrates, but ultimately all of them are broken down into glucose and absorbed into our blood. This occurs faster for free sugars (e.g., table sugar and corn syrup, which are added to soft drinks and jams, biscuits, and sweets) and a bit slower for starch found primarily in potatoes, rice, corn and all other cereals.

The problem is that starchy foods from highly processed grains, such as white bread and white rice, which have been stripped of their fiber, behave just like simple sugar. They are quickly digested and absorbed, causing steep spikes of blood glucose, which in turn trigger big rises of insulin. The high amount of insulin released by the pancreas to lower blood glucose can overshoot the mark and result in rapid and sharp declines in blood glucose, which in turn induces appetite, creating a vicious circle of hunger, fat deposition and obesity.

Carbohydrates that slowly release glucose and have a low glycemic index induce satiety and decrease hunger, therefore reducing the risk of obesity. Both low-glycemic foods and whole grains offer protection from the risk of developing type 2 diabetes, coronary heart disease and colorectal cancer. For example, regular consumption of whole grains induces a 20–40 per cent reduction in the risk of cardiovascular disease and a 20–30 per cent decrease in the risk of diabetes.

The rate of glucose absorption and its concentration in our blood is influenced by many other factors, such as:

- the total carbohydrate content of the food, also called glucose load;
- the fat and protein content of the added meal components;
- the type of food processing;
- the volume and frequency of our meals;
- the timing since our last bout of physical exercise;
- our body weight and metabolic health.

These factors modify the levels of circulating insulin in our blood and the clearance of glucose from blood into our muscles, liver and fat cells. For example, white bread and carrots have similar glycemic index values, but carrots have much lower carbohydrates.
In contrast, foods like baked potatoes and French fries, white bread (especially the sugar-enriched buns used for burgers), white rice, rice cakes, cornflakes, pretzels and instant oatmeal should be eliminated or drastically reduced from people's diet because they possess both a very high glycemic index and a very high glucose load. At the other end of the spectrum, whole grains (brown rice, farro, barley), legumes (chickpeas, lentils, fava beans, black beans), and some fruits (berries, apples, prunes) have a smaller effect on blood glucose. Most green vegetables (lettuce, cabbage, broccoli, spinach, arugula, chard, kale) have so little an effect as to be almost undetectable.

How we process and cook our carbohydrates is also very important. For instance, food should not be overcooked, as this changes the starch's structure, and modifies how fast carbohydrates are digested and absorbed. For example, when rice is overcooked in water, the starch granules get disrupted and gelatinized into a form easily available to pancreatic amylases, the enzymes that break up starch into simple sugar units.
Spaghetti cooked "al dente" behaves differently because of the dense food matrix of the durum wheat flour, which is digested more slowly than white rice and induces a much lower glycemic spike.

A trick to help lower the absorption of carbs is to add extra-virgin olive oil to our meal, because this is known to slow the absorption of carbohydrates into our intestine.

3.2.4 Fiber

A heathy diet should contain lots of dietary fiber. For instance, people consuming a traditional Mediterranean diet consume at least 45 g of dietary fiber per day, particularly insoluble ones.

Data from a large European epidemiological study suggest that people who consume only 14 g of fiber per day have a 30 per cent higher risk of mortality than those consuming 30 or more grams per day. Other epidemiological studies suggest that individuals who consume at least 25–29 g of fiber per day have a reduced risk of dying of diabetes, heart attack, and colorectal and breast cancer.

4. Healthy Behaviors

Smoking, alcohol, sun and even gum disease can affect your chance of living a long, healthy life. Limiting exposure to harmful substances like cigarettes may be obvious, but with other factors like the sun and alcohol it is a matter of striking the right balance.

4.1 Stop smoking

The scientific data are very clear. Mortality among smokers is three times higher than in people who have never smoked, and smokers live on average 11 to 12 years less.
Not only will smokers live for a shorter time, but they will almost certainly suffer one of the many maladies that are caused by cigarette smoking. The risk of developing lung cancer is about 25 times higher in smokers than in non- smokers as a heart attack or chronic obstructive respiratory disease.

The carcinogenic substances that enter their circulation also increase the risk of developing many cancers of the oral cavity, pharynx, larynx, esophagus, stomach, colon, pancreas, bladder, kidney, endometrium, and breast. However, the list of smoke-related disease doesn’t end here, it continues to grow. A recent study on a population of about a million people followed for 11 years showed that smokers have a two-fold increased risk of dying from kidney failure, hypertensive heart disease, infections, and various other respiratory diseases. Smokers need to abandon this unhealthy habit altogether, instead of cutting down.

4.2 Avoid Alcohol

That heavy *alcohol consumption* is linked to poor health is an undisputed fact. It is also a major cause of fatal traffic accidents, violent crimes, injuries, depression, and suicide. Heavy alcohol users, that is who drink five or more drinks on the same occasion on five or more days in one month, have an increased risk of liver cirrhosis, pancreatitis, heart disease, stroke, dementia and cancer of the oral cavity, larynx, esophagus, and liver. They also have fertility issues including reduced sperm count, and chronic sleep disorders.

Some epidemiological data, however, suggest that moderate alcohol consumption may reduce mortality from heart attacks. A study, published in The Lancet, analyzed data from 83 studies of almost 600,000 current drinkers without previous cardiovascular disease from 19 high-income countries.
Numerous studies suggest that the risk of melanoma is also influenced by dietary habits: it is lower in those who eat lots of vegetables, fruit, fish and foods rich in vitamin A, C, D and E. Therefore, it seems that what we eat plays a fundamental role, independent of sun exposure, to protect or increase the risk of neoplastic transformation of certain cells of the skin.

The reality is that the scientific evidence linking daily light to moderate intake of red wine with a reduced incidence of heart disease is based mainly on epidemiological data. Some randomized clinical trials have shown that moderate consumption of red wine or alcohol has a small, but significant effect in increasing HDL-cholesterol, in reducing fasting insulin, triglycerides, LDL-cholesterol and total cholesterol-HDL-cholesterol ratio. However, well-conducted studies indicate that even moderate alcohol intake is an independent predictor of enlargement and dysfunction of the heart's left atrium, which can lead to atrial fibrillation, a major risk factor for stroke.

4.3 Health checking

Regular *health checks* and blood tests can identify metabolic alterations early on, which if left untreated can lead to potentially deadly chronic illnesses. Tests can identify early signs of disease for instance a precancerous cervical lesion, a colon polyp, a small breast cancer mass, that can be addressed with an early and much less invasive treatment. This, in most cases, drastically reduces the risk of serious complications and death.

Independent of people lifestyle such as what they eat, how active they are, if they smoke cigarettes, having regular physical examinations, blood tests and prevention screening is important to maximize our chance to live a long and healthy life.
Family history of illness and other important factors need to be taken into consideration. These might considerably impact the check-ups and screening procedures we undertake and how often.
It is essential to periodically ask your doctor to measure several cardiometabolic markers, which have been shown to predict the risk of developing heart disease and stroke, such as your BMI, blood pressure, cholesterol, glucose, white cell counts and C-reactive protein, and triglycerides.

4.4 Sleep

A good night's rest helps to protect the heart, reducing the workload to which it is subjected: when people sleep, in fact, even the heart "rests" and blood pressure is lowered.
Sleep deficiency is dangerous for our health: little and bad sleep has been associated with an increased risk of obesity, arterial hypertension and other factors contributing to the onset of heart attacks and strokes.
A restful sleep therefore helps to reduce the risk of high blood pressure and cardiovascular disease. Good sleep is a fundamental condition for a healthy heart.

Modern science has confirmed the importance of sleep in regenerating the brain and has started to explain the mechanisms. For instance, during deep slow-wave sleep there is an activation of functions that help the neurons to remove toxic metabolites, which have been accumulated during the day. In addition, it seems that sleeping exerts an anti-inflammatory effect and improves the efficiency of the immune system, reducing the risk of infections.
Information processing and memory consolidation takes place during this deep slow wave sleeping period. Sleeping deeply helps to consolidate in the memory all the key information that people have learned during the day.

During the first few hours of rest there is an activation of mechanisms that increase brain plasticity and the formation of new synaptic protrusions. A new study suggests that delta slow-wave sleep improves the consolidation of long-term memory by inhibiting the dopaminergic activity of neurons. In contrast, an excessive excitement of neurons during wakefulness accelerates the oblivion of newly acquired information through an activation of dopaminergic activity.

Sleep deprivation, and particularly disruption of slow-wave deep sleep, can disrupt the ability to encode and consolidate new memories. In one study, research volunteers were asked to solve some mathematical problems, but concealed deep within the formula was a hidden rule. During sleep, and probably also during deep meditation, the brain behaves more similarly to a computer, that is, it can run multiple programs at once.

4.5 Mindfulness

Too many people are unaware of how stress or anxiety works in their brain. They are constantly thinking even when trying to relax in bed. Their mind keeps obsessive thinking that can drive them into a negative spiral, a dark hole. They fear every possible negative affect and that anything and everything could lead to failure or loss. They live their days not paying attention to what is happening within and around them.

Mindfulness can be instrumental in overcoming these harmful psychological processes. Experiments suggest that learning to observe our thoughts, instead of being carried away by them, improves awareness and subjective wellbeing. Negative emotions, moodiness, worrying and stress are reduced, while the level of self-esteem and life satisfaction are increased.

The practice of mindfulness also has beneficial effects in preventing or addressing some more serious psychiatric conditions. The scientific studies have confirmed that the practice of mindfulness has positive results in the treatment of chronic stress, panic attacks, agoraphobia and depression.

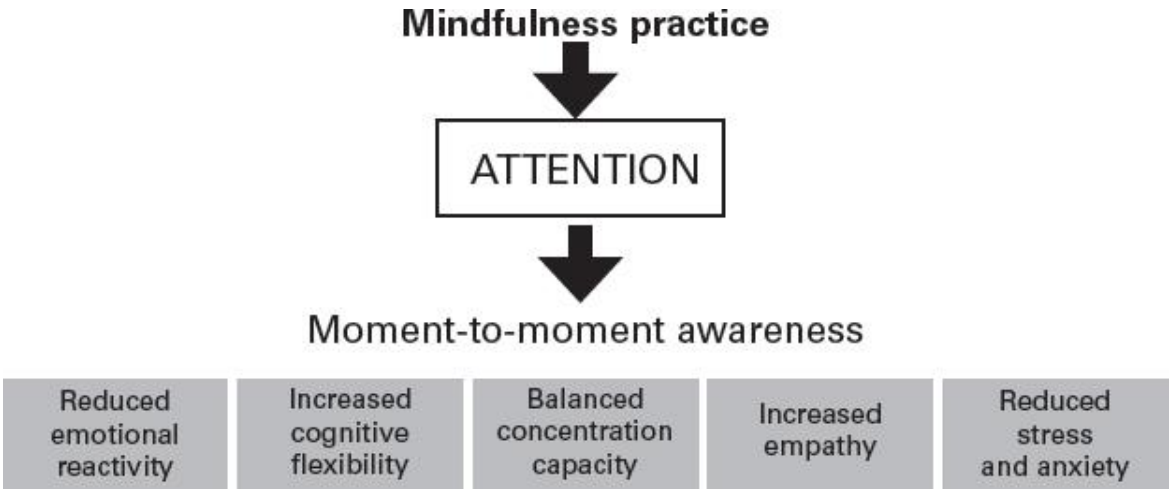

Figure 7: Benefits of mindfulness meditation

The benefits of mindfulness meditation are:

- enhance concentration capacity;
- decrease stress and anxiety and reduce negative thoughts;
- reduce emotional reactivity and increase flexible thinking;
- enhancement of working memory and improvement relationship satisfaction;
- increased empathy and enhanced self-compassion.

4.6 Positive thinking

Modern science has confirmed that persistent negative emotions and psychological stress, such as work and marital stress or caring for a sick relative, have harmful consequences on cardiovascular health.
Anger and hostility also have negative influences on blood pressure, and on the function of the arteries and the heart. In experimental animals, chronic stress induces fibrosis of the heart and increased plaque formation in the coronary arteries.

The *negative emotions*, like anger, grief and sadness, however, should not be ignored or bottled up. Emotional suppression results in amplification and the negative emotions get stronger. It is important, instead, that people learn to control their negative emotions with a mindful approach.

Chapter 3

1. Business Model

To begin with, what is a *business model*? In this thesis, we will use the definition of Osterwalder:

"*what describes the rationale of how an organization creates, delivers, and captures value*".

According to Osterwalder, the business model design process has five phases: mobilizing, understanding, designing, implementing, and managing. The progression of these phases is not always linear as depicted in the image below.

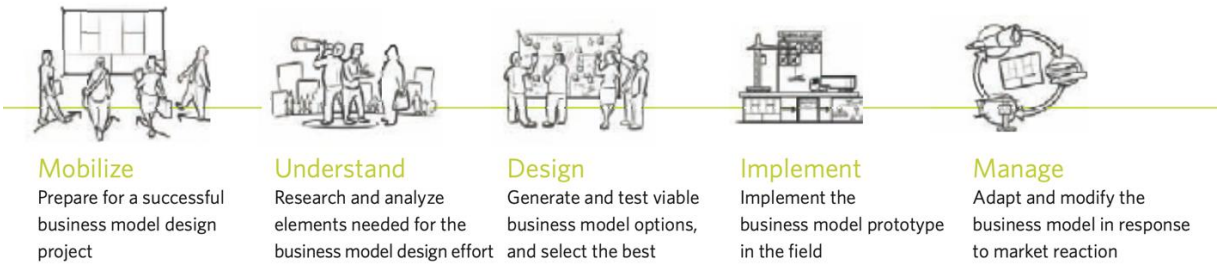

Figure 8: Phases of Business Model of Osterwalder

In particular, the phases of understanding and design tend to proceed in parallel. For example, the design phase can also lead to new ideas that require further research and a new understanding phase analysis. Finally, the last phase, Manage, concerns the continuous management of the business model.

Considering the considerable investment that an enterprise makes in producing a business model, it makes sense to extend its life through management and continuous evolution until it needs a complete rethink. Model evolution management will determine which components are still relevant and which are obsolete. For each step of the process, it needs to indicate the goal, focus, and content.

To do this, the thesis will start from an analysis of the business models of applications already existing and available to the public. Once having identified the fields on which want to operate, the goal is to compare the various models to define the optimal one for the development of *GoodLife application*. After research on the various apps in circulation, we can identify essentially three main business models regarding:

- Health
- Physical and Mental Wellness
- Food

2. mHealth Applications

Mobile health, known also as *mHealth*, refers to the use of mobile devices for medical and health practices. The term is commonly used to mean the use of mobile communication tools such as smartphones, tablets and watches for the prevention, promotion, treatment and maintenance of health, information, and data collection. It was born as an emerging field of digital health, *eHealth*, which uses information and communication technology.

Although mobile health certainly has an important use in industrialized nations, it has emerged, as the same, for developing countries and low-income nations. The field, therefore, emerges largely as a means of providing greater access to ever wider segments of the population in developing countries, as well as of course improving the capacity of health systems in these countries by providing quality health care.
Digital technologies are becoming an important resource for both healthcare provision and public health. Mobile wireless technologies are particularly relevant due to their ease of use, wide reach, and wide usability.

Digital technologies, such as mobile wireless technologies, have the potential to revolutionize how populations interact with national health services; digital health, and mobile health, have been shown to improve the quality and coverage of care, increasing access to health information and services, promoting positive changes in health behavior to prevent the occurrence of acute and chronic diseases.

Figure 9: mHealth devices to human life

2.1 Classification of Health Apps

This type of applications is called *mHealth Apps* created for mobile devices with the aim of "intervening" on one or more aspects related to health.
In general, *mHealth apps* can be grouped into two macro categories:

- *Medical Health*: all useful apps in the management of a specific disease, which support all stages from diagnosis to treatment and monitoring, often linked to insurance companies.

- *Physical Wellness*: all those applications for fitness and in support of a correctness of life that are part of behavioral change and preventive well-being.

- *Mental Wellness:* all the applications used to prevent stress problems or to combat psychological disorders caused by everyday life.

2.2 The market of mHealth

mHealth market is high and it is constantly growing. According to a report made by Grand View Research, the global mHealth apps market is expected to reach USD 149.3 billion by 2028 and is expected to register a CAGR of 17.7% over the forecast period.

This covers both types of mHealth apps: fitness apps (also called “healthy lifestyle” apps or “wellness” apps) and medical apps. According to the previous classification, fitness apps include diet, nutrition, exercise, fitness, lifestyle, and stress. This is how the two types compare by market size:

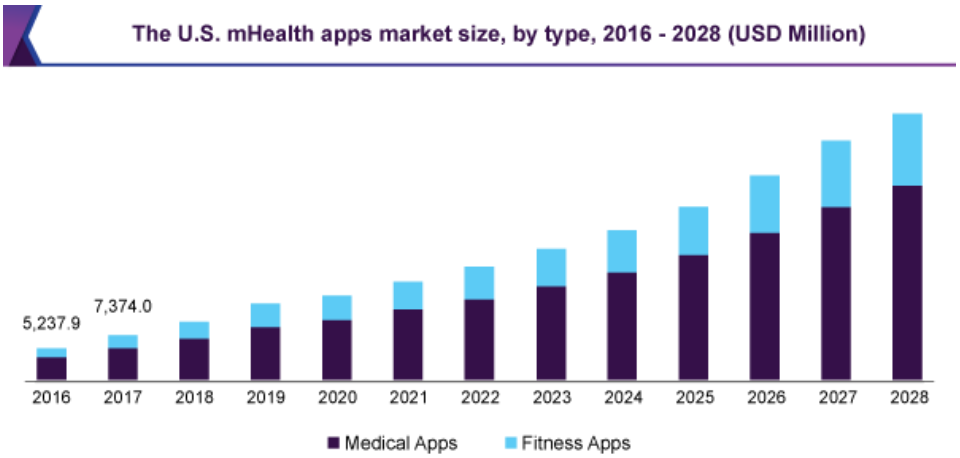

Figure 10: Forecast on how the market will grow by 2028

2.3 Legislation on mHealth

The definition of "medical device" contained in art. 1 of Directive 93/42/EEC (MDD) includes all devices, including computer software, which have a medical purpose. Regulation (EU) No 2017/745 (MDR), which entered into force on 26 May 2021, contains a virtually identical definition, also including software in the notion of medical devices. The definition of the term 'medical devices'. Therefore, many mobile applications dealing, inter alia, with health, fitness and well-being fall within the scope of the definitions in art. 1 MDD and art. 2 MDR.

In this regard, recital 19 of the TDM reminds us of how "*software specifically intended by the manufacturer to be used for one or more of the medical uses indicated in the definition of medical device shall be considered a medical device, while software intended for general purposes, even when used in a healthcare context, or software for purposes associated with lifestyle and well-being is not a medical device*".

It is important to note that the MDR introduces a new classification rule for medical devices, which will likely affect the classification of the same mHealth Apps. While according to MDD, most software falls under risk class I, the stricter requirements of the MDR could result in some mHealth Apps being placed in a higher risk class. The transition from Class I to a higher class implies the involvement of the notified body in the conformity assessment, which represents a heavier burden for the developers of mHealth Apps in terms of budget and time planning.

The same attention is also paid to the adoption of adequate security measures appropriate to the risk that the mHealth Apps could involve, also in terms of data breach. Therefore, the developers of mHealth Apps are required to adopt data security policies that minimize the chances of unjustified data access, cyber-attacks, leaks and/or data breaches. In general, given the sensitive nature of health data, mHealth Apps should provide targeted security measures such as user data encryption, as well as appropriate authentication mechanisms. Of course, the adoption of specific security measures is required from the developers of mHealth Apps, who are required to identify the most appropriate solutions by adopting a risk-based approach.

2.4 Smartwatch Companies

The best smartwatches in modern times are more than an extension of a smartphone; they are a standalone wearable technology. As world-leading tech companies such as Apple, Google, and Samsung have worked to meet the needs of niche markets such as fitness tracking, they have entered an arms race. Each generation of smartwatch has had to outperform not only its own earlier iterations, but also the latest versions of its rivals.

This has created a thriving marketplace for smartwatch shoppers, not only for those in the market for a generalist watch such as the Apple 6 or the Samsung Galaxy, but also for more sport-specific watches such as the Mobvoi TicWatch or Fitbit Ionic.

Samsung, Sony, and LG were the first to introduce smartwatches in the global market. Later, Apple took its first step in the smartwatch industry with iWatch and unsurprisingly became the leading producer of disruptive smart watches. Fitbit, Fossil, and Guess opted to enter the Android Wear project as well.

Below is a chart comparing the relative popularity of the leading smartwatch brands based on monthly search volume.

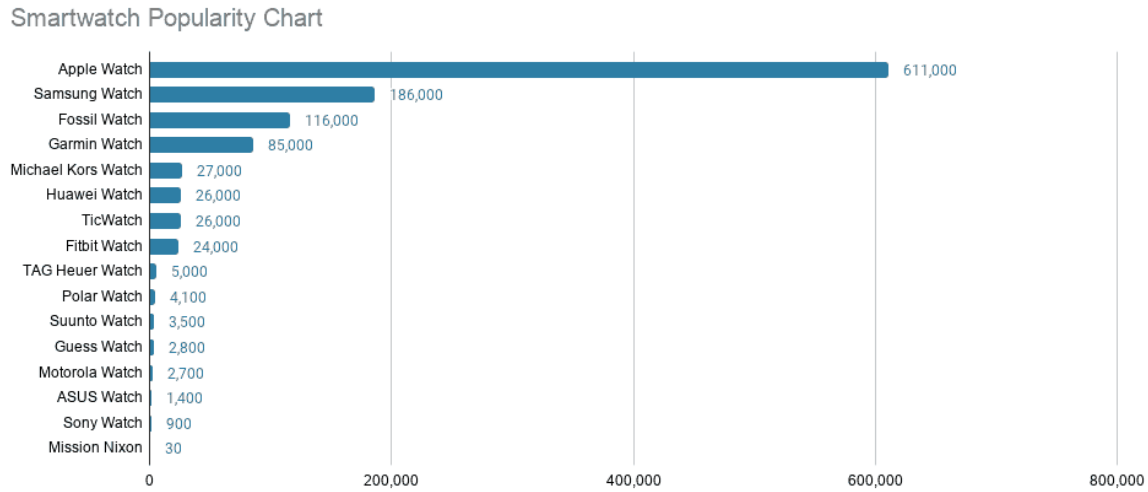

Figure 11: Comparison of the smartwatch brands based on monthly search volume

2.5 Personal Health

The field of mHealth that will probably experience the biggest changes in the coming years is that of "medical" apps, which monitor, or rework *data* derived from the measurement of a patient's physiological parameters. In some cases, it is appropriate to talk about real medical devices, as they are tools to be used alongside smartphones and that make them complementary and indispensable to healthcare services. With the aim of ensuring compliance in terms of safety and accuracy of the results of the surveys, the European Union issues, following the evaluation of appropriate control bodies, the "CE" marking.

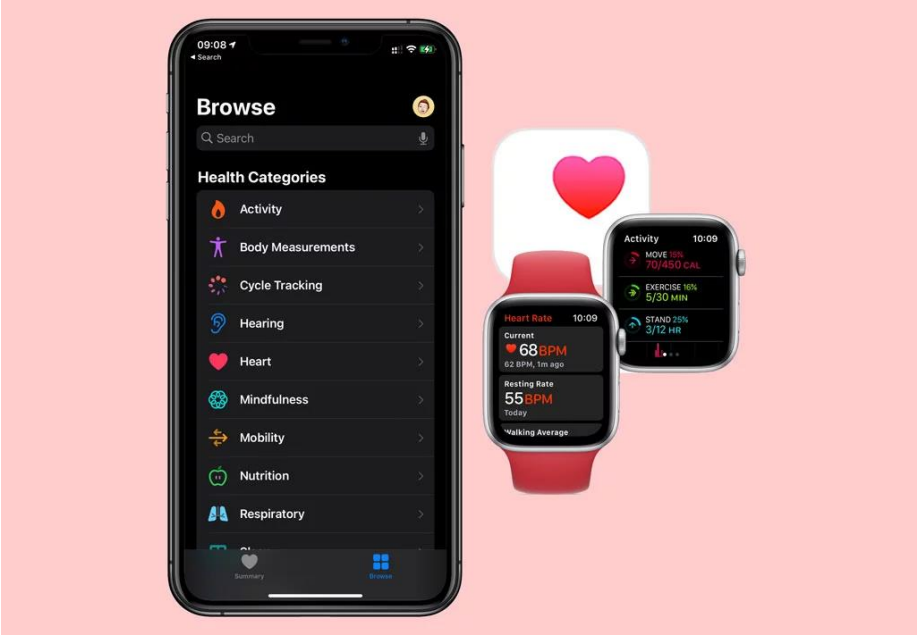

Figure 12: iPhone connected to Apple Watch through Health app

These apps often take advantage of pairing with camcorders, microphones, sensors or external devices whose performance comes very close to those of dedicated tools (wireless sphygmomanometers, electrocardiogram sensors integrated in a smartphone case, contact lens with chips that reads glucose values). Thanks to the connectivity offered by the smartphone, the apps associated with the medical device can have as an end user the healthcare staff, allowing the monitoring of patient values and the remote management of pathology through the visualization and analysis of the collected data.
Despite the promising prospects that the use of portable digital devices allows, to date, most medical apps still consist of a kind of diary in which the patient can record the measurements of the parameters related to the pathology (blood sugar, saturation…). There are also many apps that remind you to take your daily therapy.

However, this type of application does not represent a real business model as they are services that are integrated into devices such as smartphones or watches.

2.5.1 Main services

Heart rate and ECG

One of the most popular and common service of mHealth apps is the *heart rate measurement.* With this function, people can control the heart rate whenever want. After opening the app and wait for the device to measure the heart rate. People can also control the resting heart rate while walking, breathing, training, and recovering throughout the day.

Many apps make an ECG too. They track an electrocardiogram that records electrical signals that allow the heart to beat. By controlling these pulses, the app detects the heart rate and checks whether the upper and lower cavities of the heart are synchronized. Lack of synchronization may be a symptom of atrial fibrillation.

O2 Levels

Many health apps integrated in Smart Watches can measure the O2 levels in blood. This is very important specially during Covid-19 period. The level of oxygen in the blood represents the percentage of oxygen that the red blood cells carry from the lungs to the rest of the body. Knowing this information can help you understand your overall health status. Most people have blood oxygen levels of 95-100%. Some people lead a normal life with blood oxygen levels below 95%.

2.5.2 List of applications

- Health (iOS)
- ECG App (watchOS)
- Blood Oxygen App (watchOS)

2.5.3 List of devices

- Apple Watch
- Samsung Galaxy Watch
- Amazfit GTS
- Honor Magicwatch
- Fitbit

2.6 Diseases & Treatments Applications

In the context of mobile health, many benefits can be identified, the greater involvement of the patient in the management of their treatment path, and better access to treatment. When implemented and properly deployed, medical apps can help promote a healthy lifestyle by improving citizens' awareness and active participation in managing their health. They can also facilitate and speed up the doctor-patient communication allowing to receive medical instructions summarized and always updated on your smartphone, while allowing the doctor to monitor your patient even remotely, thus improving autonomy and safety. In addition, using the digital instrument can encourage medical-patient contact by allowing real-time consultation between specialists of different fields. With a view to increasing the spread of digital health on the move, an integrated network of diagnostic, monitoring and management tools would reduce the costs of care and hospitalization for the health system.

As evidenced by the Ministry of Health, the investment and development of *eHealth* and *mHealth* solutions aim to improve the health service through enhanced collaboration between professionals and patients through the intermediation of high-tech tools, but as user-friendly as possible.

The introduction of telemedicine in the health system would reduce by as much as 45% the mortality rate precisely for chronic diseases and this because it allows to reduce the aggravation rate thanks to monitoring. In fact, there are many diseases that allow the patient to continue to live at home, but this does not automatically protect against the risks of complications. This is the case of cardiovascular diseases, metabolic syndrome, diabetes, all diseases that, thanks to telemedicine, can be addressed and managed as a greater serenity. Crucial is the network that connects the family with the hospital and the territory.
Most of these apps shows up free in the download. The users, like patients, must subscribe to have access to the services. The most relevant revenues are proposed in the following graph.

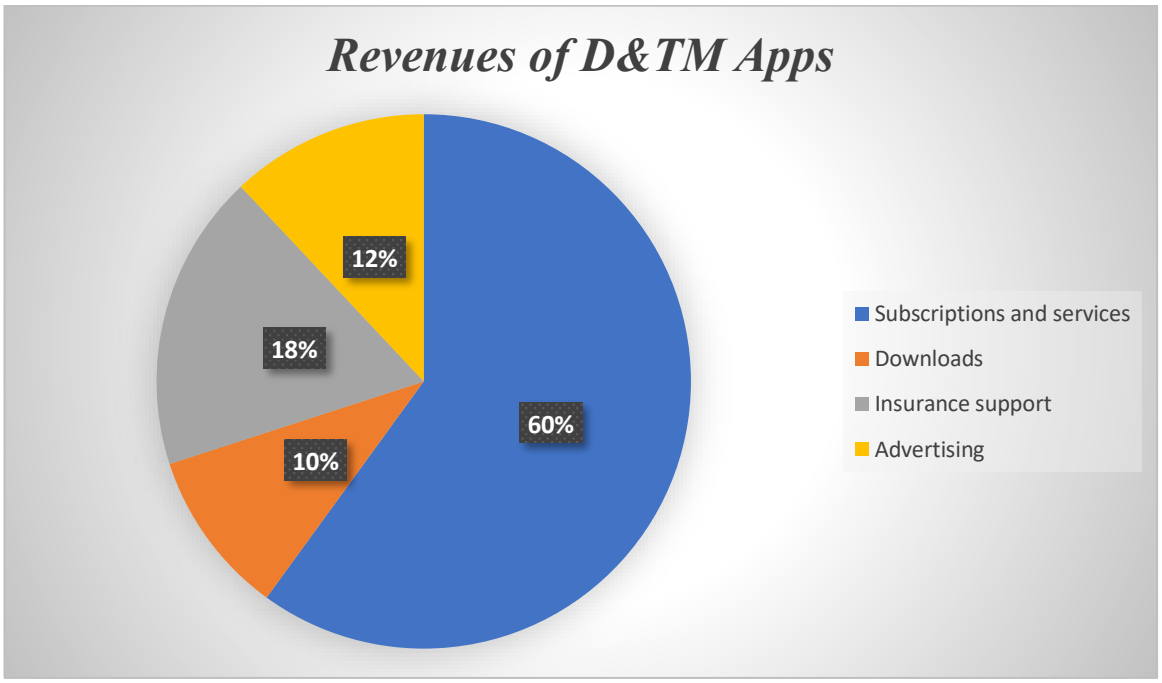

Figure 13: Revenues from D&TM apps

2.6.1 Uses and benefits

The benefits that patients and physicians can get from here are some examples of what can be achieved:

- The doctor can remotely check the health of his patients, receiving real-time notifications in case of problems;
- The doctor's activity becomes more streamlined because it can reduce the number of routine visits to his patients;
- The quality of life of the patient improves, because it is no longer necessary to physically go to a hospital or medical office to carry out certain types of control;
- The turnover of beds in hospitals becomes more frequent, as patients can leave the facilities first to be monitored even remotely;
- This reduces the cost of healthcare, improving the efficiency of public and private health systems;
- Insurance companies can offer policies that are more appropriate to the actual needs of their customers.

2.6.2 Main services

Medical consultations

In the first case, these are systems that connect patients with doctors to assist in the diagnosis, monitoring, management and accountability of the same through a videocall too. Patients can book a consultation which specialists they need. Data transmission, like medical exams, can be automated or performed manually by the patient. Patients and doctors can actively exchange information to ensure not only the treatment of the pathology, but also the prevention of potential aggravation.

Chatbot

Full medical advice is not always necessary, since sometimes both the doctor and the patient do not have too much time available, but also because sometimes the consultations are short-lived. Here then comes another service, that is a chat through which doctor and patient can exchange information even not in real time. This is the case, for example, when asking for a consultation without any urgency.

2.6.3 mHealth apps Business Model Canvas

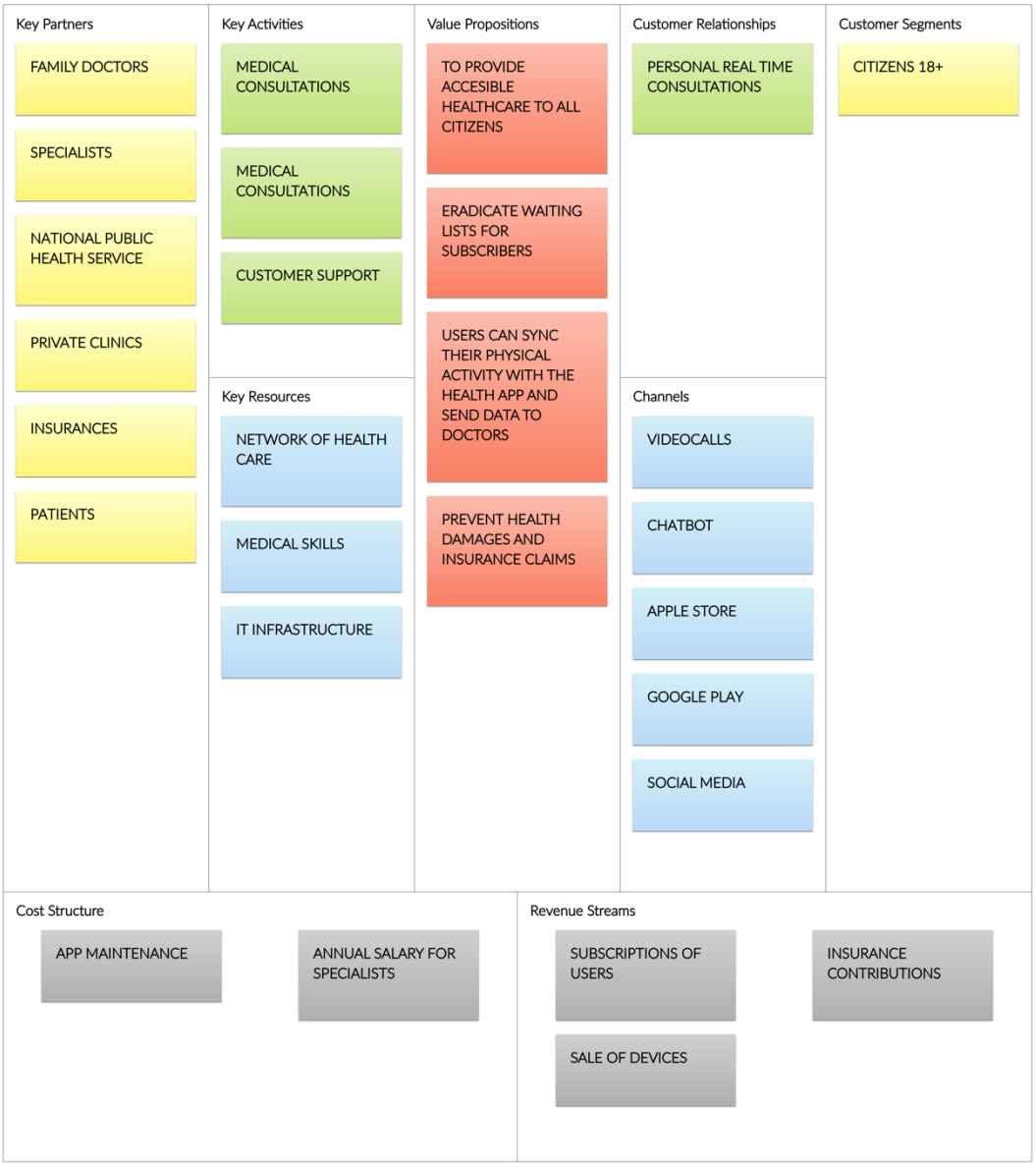

Table 1: BMC of Medical Health apps

Key Partners

The main actors that take part in the business model are the patients and doctor. Patients download mHealth application to receive health services from doctors. They could be family doctors or specialists. National Public Health Service and Private Clinics want to reduce the cost of healthcare, improving the efficiency of public and private health systems. Many times, insurances companies take part to the business support for welfare. The insurance world is increasingly aligned, thanks to digital transformation, on the concepts of customer centricity and preventive damages.

Key Activities

The most relevant activities of mHealth Applications are medical consultations and chatbot. They contribute to force the link between patients and doctors. To overcome digital divide and help people who are new in this new system, a customer service is available.

Key Resources

To identify key resources, we need to analyze the physical and intellectual resources. First, the physical ones are the network of a health care and its database, an IT infrastructure for the application and website, the usage of Artificial Intelligence to help doctors to be more efficient in their consultations and the identification of the solution for the patient and not less important funding. The most important intellectual resource is the capability and knowledge of the doctors and specialists. Without an efficient service that can help truly the patients, the system would fall.

Value Propositions

The most important value proposition of this applications is to provide accessible healthcare to all citizens. They often neglect symptoms and do not go to the doctor either for lack of time or for high cost or for long waiting lists. The passage of time, at worst, can disturb the patient without posing an important danger to his health. In this way, there is the possibility to eradicate the waiting lists and make the public and private system more efficient.
Many insurance companies create or collaborate with these types of applications in order to prevent claims from their customers. By doing so, they are able both to reduce the cost of policies for their customers and to avoid harm to themselves.

Customer Relationships

The service that these applications offer has the advantage of being, in essence, a new way of obtaining a service that has existed in medicine since the specializations were introduced: the opinion of a more experienced colleague in a specific therapeutic field. Patients' user can receive a consultation in real time via call or via chatbot wherever they are. They can also take appointments more easily than via call to national telephone number.

Customer Segments

Segmentation is a key element to plan the market analysis, clarifying the needs of customers allows to develop a package of targeted products and services, to identify the most profitable distribution channels and to decide within which market you want to position yourself. The main customers are all citizens, patients and doctors. The firsts want to receive the best help for their health and the second ones want to help their patients and to be known to have more "clients patients".

Channels

Channels are the contact points between the company and its customers. There are two types of channels: direct channels of property of the company/mHealth app like videocalls or chatbots and indirect channels not of property but used to make revenues like Apple Store and Google play to be on the marketplace and the social media to be known.

Cost Structure

The costs of specialists vary depending on the number of users you turn to. If it increases, it will be necessary to increase the number of specialists to meet everyone's needs. To offer a complete service and meet the needs of all customers, you need to hire a specialist for each field of medicine.

Revenue Streams

The Revenue Streams block describes the revenue streams that can be obtained from the sale of services to a specific customer segment.
The main source of revenues is represented by the patients would be willing to pay a small monthly subscription to use the consultation service. Each doctor or specialists for each visit or private consultation give a collection percentage to the application system.
As told before, insurance companies could contribute to make revenues through the accessibility of data or their clients.

2.6.4 List of applications

- mSafety
- Medscape
- Asthmapolis
- Allianz HealthSteps

2.7 mSafety Business Model

MSafety is a fully scalable mobile health and safety monitoring platform. The category of this type of service is about D&TM. Service providers create their own applications, leveraging Sony's excellent and renowned communication features and the security offered by mSafety.
Customer dashboards support simplified device onboarding, and over-the-air software updates.

The wearable device is equipped with integrated sensors for monitoring physical activity, heart rate, body effort and sleep-wake cycles, as well as GPS for position information. Thanks to an integrated e-sim, it is always connected to the Internet without the need to associate it with a mobile phone. It can also be connected to external sensors provided by health service providers.

Smartwatches, through Internet connection, send data to a server which communicate with specialists which are Sony's partners expert in their sector. They make an analysis of health data and answer to customers advice about their health conditions.

The following table shows the Business Model Canvas for mSafety.

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
SPECIALISTS	ANALYSIS OF HEALTH DATA	USERS CAN SYNC THEIR PHYSICAL ACTIVITY WITH THE HEALTH APP AND SEND DATAS TO SPECIALISTS	GET MEDICAL ADVICE ONLINE WHEREVER YOU ARE	CITIZENS 65+
PRIVATE CLINICS	MEDICAL CONSULTATIONS	PREVENT HEALTH DAMAGE AND IMPROVE QUALITY OF LIFE	REAL TIME CONSULTATIONS VIA CALL	PATIENT WITH CHRONIC DISEASES
INSURANCES	CUSTOMER SUPPORT			OLD PEOPLE IN RSA
SMARTWATCHES AND DEVICES PARTNERS				WORKERS
	Key Resources		Channels	
	IT INFRASTRUCTURE		APPLICATION	
	AI SYSTEM		VIDEOCALLS	
	NETWORK OF HEALTH CARE		SOCIAL MEDIA	
	MEDICAL SKILLS			

Cost Structure		Revenue Streams	
SPECIALISTS	MAINTENANCE OF THE APP	SUBSCRIPTIONS OF USERS	SALE OF DEVICES

Table 2: BMC of mSafety Sony

3. Wellness Applications

The ever-increasing attention to a balanced lifestyle, which has become almost a fashion, has not escaped the developers of smartphone applications. Apps are proposed to support, motivate, and encourage physical activity or to help facilitate the planning of the sport for which they were designed.

The fitness apps follow the user in sports practice, recording times and paths, moreover, among the various features there is the option to create custom exercise programs or share the results on social networks in real time.
In the wellness field there are apps that allow you to control diet and body weight, suggesting proper nutrition and habits, for example they can count the caloric intake or monitor the quality of rest.

An analysis of this business model used by many brands highlights how most revenue is related to the offer of services in the app and another good part to the *sale of devices* to be combined with the app.
This business model has grown exponentially in recent years, thanks to the integration between mobile applications and biometric sensors made available by wearable devices such as bracelets, smartwatches and medical devices that allow users to interact with the services made available on specific online platforms. Usually, many of these apps are subject to charge.
The prevailing source of revenues for this type of app involves the sale of *paid services* for users, or the acquisition of revenue from the *transmission of data* to business companies or partners through the app. Often these applications, having access to user tracking, sell this information to other companies for advertising purposes.

It should be noted that *advertising* has not a relevant role in revenues.

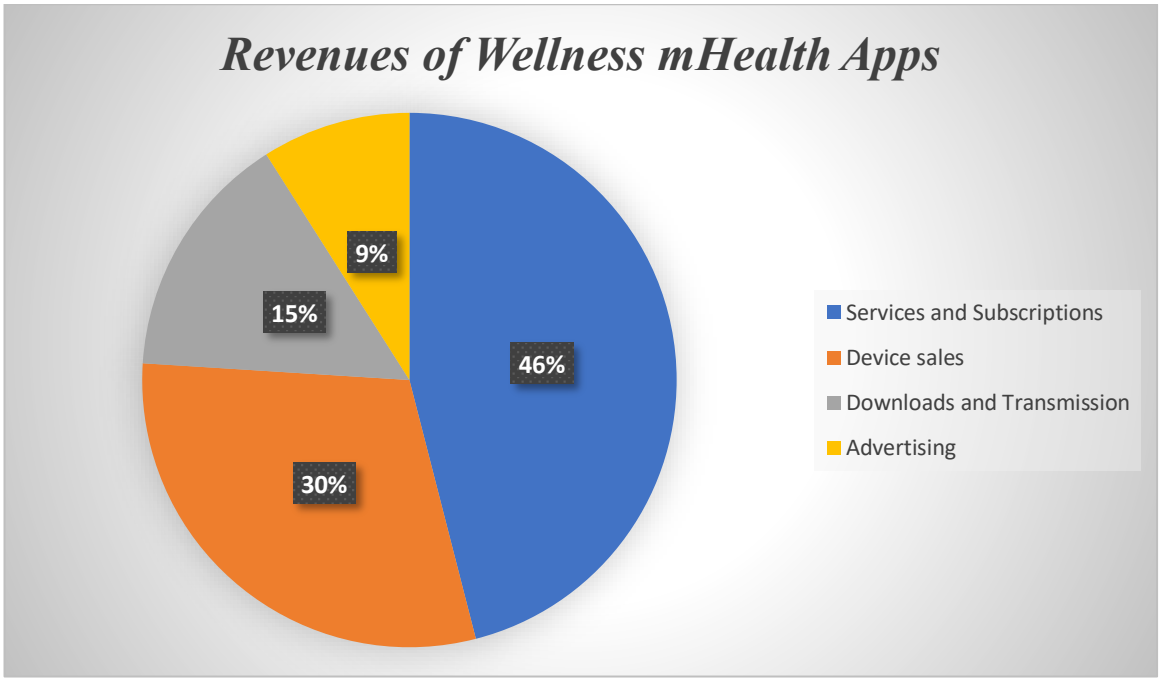

Figure 16: Revenues from Wellness mHealth apps

3.1 Physical Wellness: Fitness

Fitness apps for training at home are the perfect tool for those who never want to give up the sport. Even those who want to get closer to training, physical activity for the first time will find many benefits in relying on a smartphone app for fitness at home.
In the era of pandemic, with the impossibility to go out and the gyms closed, fitness apps have seen increased downloads and more and more users choose to train at home. Below we have listed the best programs in this category, to help those looking for a virtual coach to do exercises in the home.

During the temporary closure of all gyms, in most EU countries, affected by the emergency COVID-19, the mobile health sector, which includes mobile applications for remote fitness and wellness activities, has had a significant impact on citizens' daily lives, offering them the opportunity to take care of their body during quarantine, as well as to keep their sense of community alive.

Probably, the use of mHealth Apps will grow considerably even after the COVID-19 emergency. In fact, the unprecedented lock-down period that has just passed has had a significant impact on the way people conceive and practice physical activity, which will lead in the short term to a major change in the health habits of each.

3.1.1 Main services

Fitness lessons

One of the most famous services is about Fitness lessons from home. The fitness service is built entirely around the smartwatch and designed to be welcoming to anyone, now available in Italy too. For example, Fitness+ incorporates in a smart and continuous way, directly on iPhone, iPad and Apple TV, the main parameters of training that users already appreciate in Apple Watch, offering a personalized and engaging experience that users can complete where and when it is most convenient for them, at home, outdoors, or even in their hotel room when they are traveling. During key training moments, the personal parameters detected by Apple Watch are shown on the screen with an animation. For example, when the trainer says to check the heart rate, the heart rate parameters are highlighted; during the most intense intervals, a countdown timer starts to help users get to the last second; and when the activity rings close, a celebration animation is shown on the same training screen. The workouts are often accompanied by the songs of the best artists of the moment and are designed to keep motivation high from start to finish.

Personal Trainer

One other service used by those applications is a Personal Trainer via an mHealth app. This application for Personal Trainers and gyms that provides you with all the tools you need: training cards, body evaluations, food plans, exercise archive, food archive. All with graphics, ease of use and professionalism that you have never seen before. It could create some training sessions using the same app without sending via email or WhatsApp, no

complications, and all on the same app where you train your customers through platforms like Zoom, Meets…

Yoga sessions

Among the best fitness for training at home could not miss the Yoga. Yoga is a full-fledged physical activity from which to benefit before, after and during a fitness session. Among the best apps there are many with video tutorials, simple instructions, and exercises well explained and easy to do even for those who have never tried this activity. Yoga combines sweat and meditation, a perfect fitness app in times of pandemic and later periods.

3.1.2 List of applications

- Fitbit
- Apple Fitness+
- Nike Training Club/Nike Run Club
- Personal Trainer TeleSystem
- Fitbod
- Yoga Down Dog

3.2 Mental Wellness

Being mentally well means that the human mind is in order and works in your best interest. People can think, feel, and act in ways that create a positive impact on your physical and social well-being. Mentally well people are positive, confident, and happy. They are in control of their thoughts, emotions, and behaviors. This allows them to manage challenges, build strong relationships and enjoy life.

Achieving good mental health will allow you to:

- Realize your own abilities;
- Facing the stress and challenges of life;
- Engage in productive work;
- Contribute to your community.

Supporting mental health takes time and effort. The more you invest in your mental health, the stronger it will become.

3.2.1 Problems against mental wellness

Insomnia

Insomnia is the difficulty of falling asleep, sleeping continuously all night, or sleeping long enough. At the base there can be bad habits, such as going to bed at different times, sleeping too much during the day, indulging in heavy dinners or poor physical activity.
It is common knowledge that that excitement, fear, worry, tension, or anger can rob us of a good night's rest. Persons with certain mood and anxiety disorders may also struggle with insomnia.

Stress

Stress is the psychophysical response to several emotional, cognitive, or social tasks perceived by the person as excessive. Excessive stress can easily lead to numerous stress disorders.

Mental crisis

A nervous crisis is a mental state that causes a certain emotional disturbance and a particular fatigue of a psycho-physical nature. Typically, it is an acute condition, which has temporary duration and sudden onset.

Brain aging

As we get older, the brain shrinks, it decreases its vascularity, which remains the most important in the whole organism. This increases the incidence of strokes, dementias, and cognitive deficits, also due to hormonal changes, which can lead to impaired memory.
Mental ageing involves attention, concentration, reasoning, calculation, logic and, above all, memory.

3.2.2 Main Services

Mood journal

Many apps help the users take care of their mental health. It might be more suitable for those already struggling with anxiety or depression; however, it could also be useful for healthy individuals. The app acts as a mood journal: it regularly asks you questions, answering which helps you track your emotional state and observe how your emotional state changes in relation to other areas in your life. The app analyzes your answers, produces reports about your wellbeing and mental health, and gives you insights into your mood patterns and correlations. It also offers appropriate, evidence-based, and in-depth content regarding mental health issues. While perfectly simple, the app can bring changes by allowing the user to see what their mental state is really like and how it can be improved.

Sleep lessons

People generally underestimate the importance of sleep for their health. They go to sleep late and wake up early to have time for other health-related activities, such as exercises, morning runs, and meditation practices. Even more often, they stare at the computer more to get more done, and just don't see not getting eight hours of sleep every night as a major problem. Plenty of studies showed that sleep is crucial for our health. It affects almost everything in your body there is to effect, and the lack of it literally kills people. Sleeping more increases overall health gives you a better chance to stay at a healthy weight, lowers the risk of serious health problems, such as diabetes and heart diseases, reduces stress, improves mood, improves cognitive abilities, and does so much more. However, sleeping more requires as much discipline as any other health-related task, and one might require help falling asleep if he or she suffers from insomnia, which is not at all rare. In addition to that, it's not just the length of sleep that matters, it's also the quality and the alignment with the person's circadian rhythm. This type of apps teaches people how to sleep more and better, and how to fall asleep easier; its alarm clock wakes you up according to your circadian rhythms, and other features analyze and track your sleep to reveal the real sleep situation you're in and to encourage you to sleep more.

Healthy routine

The routine-building apps gives you a choice of healthy routines and allows you to select any of the goals you want to focus on: feel more energized, lose weight, sleep better, or focus and concentrate. It starts people off with something easy, such as having a glass of water every day after people wake up. Every morning, it sends notifications, reminding to drink some water at the time they specify. After three days of doing this first task, the app unlocks the possibility of adding the next habit people want to acquire. There are also activities the app offers meditation to feeling less stressed.

Brain training

The "mental gymnastics" in fact contributes to create new neuronal connections, improves the ability to memorize and expands the intellectual abilities. The more the brain trains, the greater the benefit for cognitive abilities and memory.

The brain training apps are designed to improve your memory, thinking skills, focus and even your intelligence, with the goal of improving the performance of important everyday tasks.
People young and old alike have been looking for brain training games to improve their mental functioning improve response time, and logic skills. In fact, there are studies that shows playing brain games can help increase mental agility and prevent brain aging.
New brain teaser apps show up every day in both the App Store and Google Play store with claims to improve memory and concentration, increase IQ or enhance other cognitive skills. Some brain exercise apps claim to boost IQ levels, positive effects on people with mental health issues such as dementia or bipolar disorder.

3.2.3 List of applications

- MindDoc
- Sleep Cycle
- Fabulous
- Lumosity
- Elevate

3.3 Physical Wellness apps Business Model Canvas

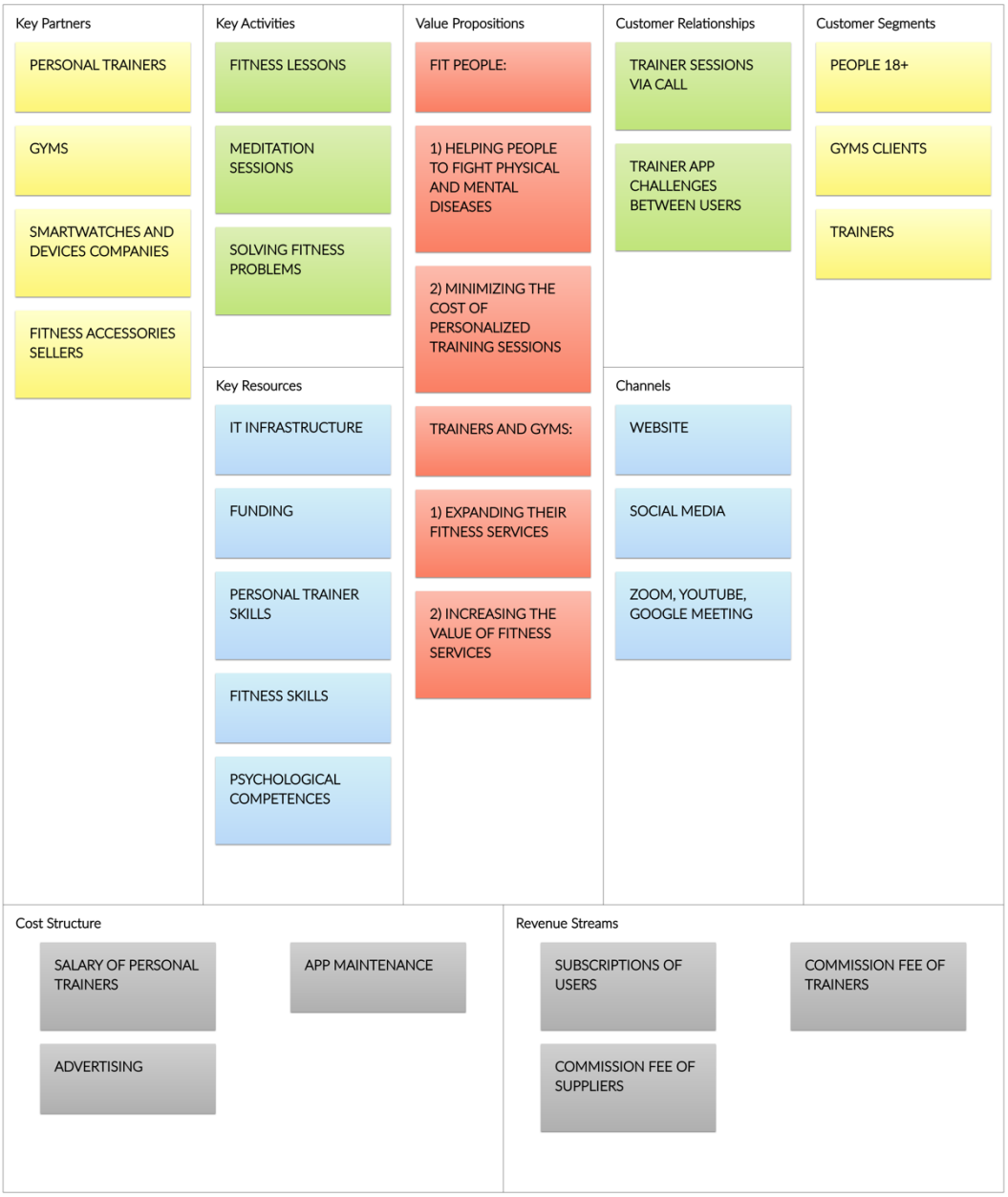

Table 3: BMC of Wellness apps

Key Partners

The main actors that take part in the business model are personal trainers, both in terms of fitness and mental health. Trainers are not just about the physicality of a person. As for gyms, they can interface with users via applications. In addition, many applications are closely related to devices that measure heart rate or that count calories consumed, so agreements can be made with suppliers. Not only of electronic devices, but also of fitness accessories.

Key Activities

The most relevant activities of mHealth Applications, as just proposed before, for the physical component fitness lessons, yoga sessions, consultations to find solutions to fitness problems and for mental component meditation sessions, mood journal to improve life quality and brain training.

Key Resources

To identify key resources, we need to analyze the physical and intellectual resources. First, the physical ones are the IT infrastructure for the application and website and funding. The most important intellectual resource is the capability and knowledge of the personal trainers. Without an efficient service that can help truly the customers, the system would fall.

Value Propositions

There are two different types of users: fit people and trainers and gym. For the first category, the most important value proposition is promoting a healthy lifestyle and improving the awareness, active participation, and motivation of individuals to health.
A distinction must be made between the value proposition of users and trainers and gyms: the former needs a convenient and not too expensive service aimed at leading them to a healthy lifestyle and the latter intend to expand the world of fitness to attract more customers making it available to all. Moreover, suppliers want to expand their market of devices and accessories also through these channels.
Gym and trainers have the possibility to offer their fitness services through the app. They could improve the existing trainer sessions or add more to give the possibility to all people have no time to go to the gym and they can take the services at home. In this way, they increase the number of clients and this improve the gym and trainers image.

Customer Relationships

The service that these applications offer has the advantage of being, in essence, a new way of obtaining a service that has existed in fitness and healthy life. Customers' user can receive a consultation in real time via call and they can make fitness sessions whenever and wherever they are.

Customer Segments

As just said, segmentation is a key element to plan the market analysis. The main customers are all adults able to make a subscription of services. In the case of minors, these must be supported by an adult able to enroll.
Personal trainers and gym's trainers can interface with users via applications. In addition, many applications are closely related to devices that measure heart rate or that count calories consumed, so agreements can be made with suppliers. Not only of electronic devices, but also of fitness accessories.

Channels

Channels are the contact points between the company and its customers. There are two types of channels: direct channels of property of the company/mHealth app like videocalls and videos updated on the platform and indirect channels not of property but used to make revenues like Apple Store and Google play to be on the marketplace and the social media to be known.

Cost Structure

The costs of personal trainers and all people engaged is depending on the number of users you turn to. In addition, advertising this type of app to make them known to as many audiences as possible has a cost that must be borne. Maintaining apps also comes at a cost, such as supporting a database, frequent updates with new training models, and new challenges to always incentivize customers.

Revenue Streams

The prevailing source of revenues for this type of app involves the sale of paid services or subscriptions of users. The customers would be willing to pay a small monthly subscription to use all the services. Each personal trainers could make additional and private workout sessions and for each consultation a commission fee for the app makes revenues. As told before, devices and accessories suppliers can contribute to make revenues through advertising and usage of their product to get better the applications services.

3.4 Fitbit Business Model

The Fitbit app offers a personalized experience to help people better understand statistics and progress while providing tips to help them achieve the goals.

The Fitbit app contains 3 tabs: Today, Discover, and Community. People can see a Premium tab if they are not a Fitbit Premium subscriber. Customers can use the Fitbit app to record food, activity, weight, and more without owning a Fitbit device. Manually enter tasks to get an estimate of the calories burned based on the personal data, such as height, weight, age and gender. For certain smartphones, people can use MobileTrack and MobileRun to track steps and activities with their smartphone.

The following table shows the Business Model Canvas for Fitbit.

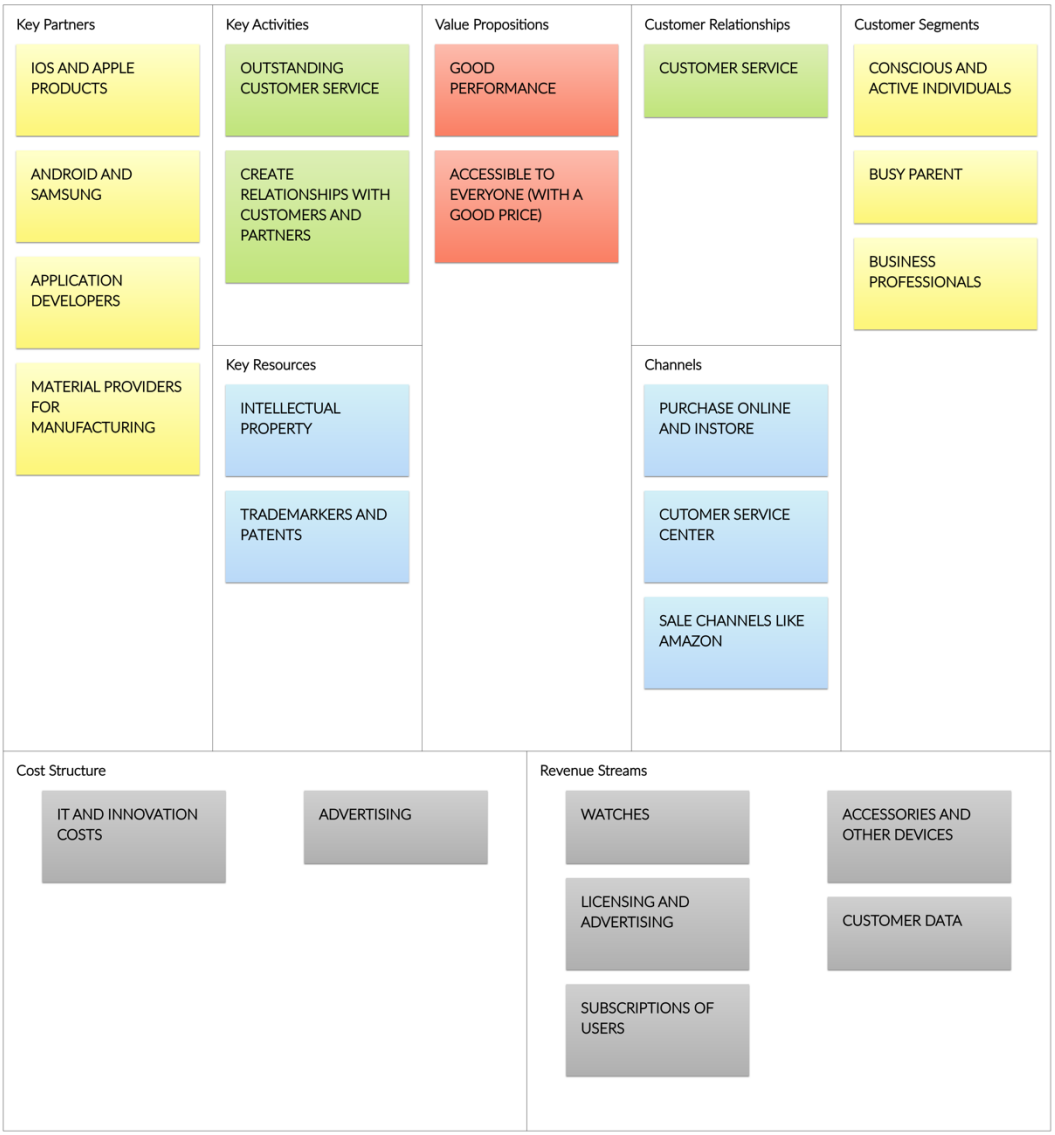

Table 4: BMC of Fitbit

4. Food Applications

Technology can also help when we face a major change in our lifestyle. There are numerous smartphone apps dedicated to those looking for help when starting a slimming diet.
These devices offer the possibility to easily and immediately monitor your nutrition, your body weight, and your level of physical activity.

Diet and physical activity apps are two types of health apps that aim to promote healthy eating and energy expenditure through monitoring of dietary intake and physical activity. No clear evidence showing the effectiveness of using these apps to promote healthy eating and physical activity has been previously reported.

The apps that help us lose weight can do a lot of things: from sending personalized messages via SMS or email to remember and motivate the subject, remembering the goals you have set, or even commenting on the results obtained. Such a system can certainly help. Like all the news, however, after a few months risks not being enough if the user does not really have clear plans and especially if it is not followed by a doctor specializing in nutrition.

Several studies have shown that a constant use of weight loss apps helps to achieve a greater weight loss if you enter in a context of a clinical program to lose body weight, but the differences in the results achieved between app users and those who rely on more traditional techniques to achieve the goal do not vary significantly. The so-called mobile health potentially represents therefore a great contribution, provided that the dedicated apps are rigorously designed and scientifically validated and that the person who is losing weight is always monitored by a nutrition specialist in his weight loss program.

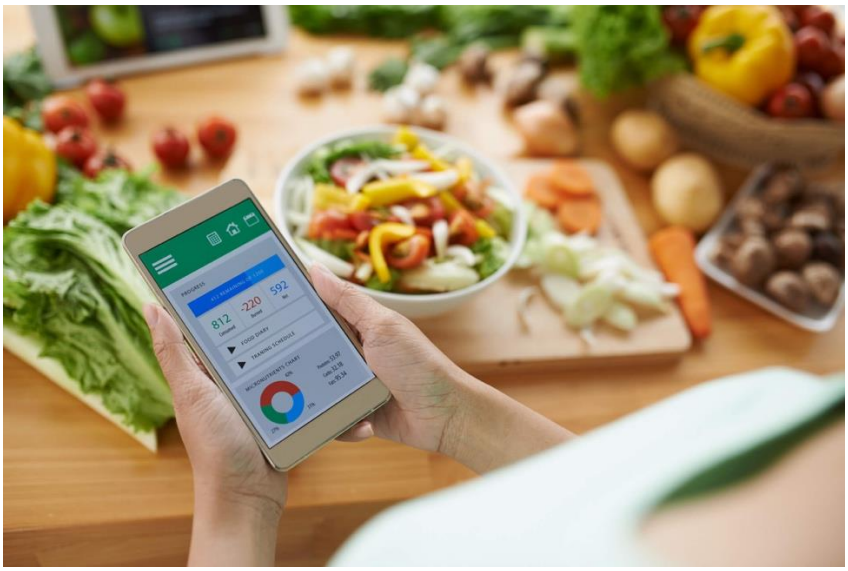

Figure 19: Food application in a kitchen helps for a balanced diet

The world of cooking and food is a potential chapter within the App Store and Play Store databases: the apps on smartphones and tablets no longer help us just to remember what to buy for dinner or to mark the recipe at hand; now they've become real allies to help us keep fit or lose weight. The key to achieving this result is *healthy eating*.

4.1 Main services

Food products information

This type of applications allows people to know what they are eating, simplifying the complex food labels: just scan the barcode to have the ingredients present and the nutritional values of the product, by relating them to the specific nutritional needs of each consumer (obtained by including age and sex). The app scores from zero to ten based on how healthy a product is, whether it is suitable for celiac or for those who are lactose intolerant and provides a list of similar but healthier products.

Healthy food delivery

One other important service is about apps offer food delivery and creates the right diet for you: a portal that brings together the figures of nutritionist, chef, and courier at home, through a process of customer data collection, study of its food needs, preparation of the appropriate menu and delivery throughout Italy. It needs to answer a few questions and choose the menu that best suits among recipes in production. Once the menu has been defined, the kitchen prepares the necessary dishes for each customer and then packs them and ships them. No problem regarding storage: the packages are refrigerated.

Calorie counting

These apps personalized guide to health and healthy lifestyles. People can calculate how many calories they are taking and have a personalized plan to keep fit or to lose weight with personalized recipes, workout and nutrition tips that will help people keep your health in check.

4.2 List of applications

- Lifesum
- Yuka
- Nutribees
- YouFarmer
- MyFitnessPal

4.3 Food apps Business Model Canvas

Table 2: BMC of Food Apps

Key Partners

The main actors that take part in the business model are all organisms involved in healthy food products for a balanced diet or for a specific diet for workouts. Restaurants, shops, and groceries can be affiliated for the sale and preparation of dishes that respect the caloric intake. Even farms can play a leading role by approaching the customer directly through the application. Nutritionists can provide advice on specific diets for the goals that customers intend to achieve both to combat food problems and to improve their physique.

Key Activities

As just proposed before, the key points of the business model regard the creation of menus customized according to the needs of the customer. After these are packaged, prepared, or cooked they can be delivered directly to the customer's home through affiliations with delivery companies. Through the application you can receive advice on nutrition and specific diets and using other applications you can count calories.

Key Resources

To identify key resources, we need to analyze the physical and intellectual resources. First, the physical ones are the IT infrastructure for the application and website, the availability of healthy food products and funding. The most important intellectual resource is the capability and knowledge about alimentation and nutrition of the nutritionists. Without an efficient service that can help truly the customers, the system would fall.

Value Propositions

There are two different types of users: general people (young, adult and old) and nutritionists. For the first category, the most important value proposition of this applications is promoting a healthy lifestyle through a correct and balanced diet. Eating in a correct way brings people to keep themselves fit and fighting food diseases. Another much more practical goal that these applications pose is the convenience that comes with both time and cost.
Often a visit and monitoring over time by a nutritionist has a considerable cost that can be partly alleviated.
Nutritionists have the possibility to increase the number of their clients that is people want to keep fit in an efficient way. Though the app they can make themselves known through different target.

Customer Relationships

The service that these applications offer has the advantage of being, in essence, a new way of obtaining a service that has existed in fitness and healthy life. Customers' user can receive a consultation from nutritionists, and they can contact a customer service asking information about food products to satisfy their food needs.

Customer Segments

The main customers are all people of legal age able to make a subscription of services. In the case of minors, these must be supported by an adult able to enroll.
Nutritionists can interface with users via applications. Often people with food problems have special needs and difficulties in finding certain products and these apps try to meet and help their needs as much as possible. Another category to which they are addressed are busy

workers throughout the day who have time to devote to the preparation of healthy foods and often resort to fast foods.

Channels

Channels are the contact points between the company and its customers. There are two types of channels: direct channels of property of the application like blog with receipts, menu or prototype of diets updated on the platform and indirect channels not of property but used to make revenues like Apple Store and Google play to be on the marketplace and the social media to be known.

Cost Structure

The costs of nutritionists which make availability their knowledge to customers to help them and all people engaged is depending on the number of users you turn to. In addition, advertising this type of app to make them known to as many audiences as possible has a cost that must be borne. Maintaining apps also comes at a cost, such as supporting a database, frequent updates with new diets and food consultations, and new challenges to always incentivize customers.

Revenue Streams

The prevailing source of revenues for this type of app involves the sale of paid services or subscriptions of users. The customers would be willing to pay a small monthly subscription to use all the services for having two mainly services: consultations with prototype of diets from nutritionists and unlimited deliveries. Each nutritionist could make additional and private workout sessions and for each consultation a commission fee for the app makes revenues. Advertising put inside the applications makes revenues and help people in the same time proposing food products for the customer's demands.

4.4 Lifesum Business Model

Lifesum will ask people for a range of information when they sign up, from weight to age, gender to the weight loss goals. At that point, it gives a bunch of daily calories to get to their weight loss goal in a certain time (two months, four months, 5 weeks), even with a breakdown of macronutrients to comply with (that is, a bunch of carbohydrates, proteins, and fats). In the total of daily calories are included those people spend on certain activities: if they play sports they can trip more, but each activity is recorded so people know how much consume in energy and according to a certain time; so even a person who doesn't go to the gym but stands up all day knows how many extra calories he spends thanks to Lifesum.

Lifesum has a Free account and a Premium account.

With Free Lifesum account, people can follow a classic diet and monitor the calories you consume (carbohydrates, protein, and fat). It allows to get a basic daily assessment to see if people are meeting their daily goals, as well as the quality of the foods they record daily.

Monitor the weight and waist, save favorites creates and saves foods, recipes, meals, and exercises.
The Premium account offers a wide variety of diets (ketogenic, clean eating, Paleo, Mediterranean, Scandinavian, high protein, etc.). It also provides people with various food programs (Vegan for a week, Keto Burn, Lose Weight in 3 weeks, etc.). People can sign up for Lifesum Premium for a month or three months or 12 months.

The following table shows the Business Model Canvas for Lifesum.

Table 3: BMC of Lifesum

Chapter 4

1. Case Study Dale Carnegie

1.1 Introduction

Dale Carnegie Training was founded in 1912 and born from the conviction of a man, Dale Carnegie, in the possibilities of personal development; he was strongly convinced that every person can grow personally and professionally if motivated, educated and trained to make more use of their abilities and the natural talents they possess. Dale Carnegie & Associates Incorporated, from Dale Carnegie's early vision, has grown to become a symbol of *business training*. Today the company is a world leader in business training. More than 2,700 trainers hold the many courses offered by the company.

Dale Carnegie offers a series of training programs that are developed at all levels of the company, with the aim of increasing skills, discovering talent, and creating the right environment and attitude. Everything starts from the awareness that every company is unique. For this reason, solutions to the respective needs must be designed and made to measure.
The training programs include inter-company courses, on-demand solutions, global solutions, and speech. As for the "inter-company courses", this type of training is classified as "Open" or open to the public. Participants are made up of "Private" or individual members or small groups of a company. In this case, the customer can find the advice and information necessary to identify the training program most appropriate to the realization and satisfaction of real personal needs. During each seminar, people are followed not only by a trained Trainer but also by a highly qualified Support Staff. Attending this seminar is comparable to the experience of training combined with that of personal coaching.
The "Solution on demand", more known as training "Company tailored - Training In House", has been designed ad hoc to offer customized solutions aimed at achieving the objectives that the company wants to achieve, and foresees different results depending on whether the training is directed outwards or inwards. It allows, towards the inside, to increase "loyalty" to the company, strengthening the sense of belonging and corporate identity, decrease turnover, develop a mentality of healthy competition oriented to Team Building and based on teamwork, develop a proactive mindset oriented towards problem solving and results. The consultants accompany the Customer in the planning and realization of the future of his company.

Through this process Dale Carnegie comes to the definition of an ad hoc project that allows people to create customized solutions for the customer, aimed at achieving the objectives set both at the level of the individual worker and at the company level. Organizations continually live formal moments of encounter where desires, new perspectives and changes are launched, all information that can represent a moment of strong emotional and organizational impact. More and more often we try, in these moments, to make the most of the investments of time and resources involved and to transform these events into real "launch platforms" for the future.

Figure 20: Dale Carnegie logo in 2022

1.1.1 The market

The great changes that have occurred in recent years have involved large and small companies, decreeing the success of only those companies that have learned to live dynamically, capable of great organizational flexibility and able to adapt quickly to the new challenges of the market. To keep up with the times and manage change, entrepreneurs and managers have therefore had to abandon the old organizational and management models and adopt a new strategy, involving all the staff in the organizational aspects.

Managers and employees are now required to take an *entrepreneurial approach*, which implies good decision-making, assessment and problem-solving skills and the acquisition of a creative and concrete mindset at the same time, to face the consequences of the continuous process of change. Teamwork and cooperation between different sectors, therefore, are today the key to the success of a company: a business organization that underestimates these aspects risks losing its customers and failing to face competition.

The most advanced economic and social analyses show that investment in human capital is to be considered the preeminent and strategic factor of development with respect to investments in physical capital, both infrastructural and directly productive. This perspective reverses the approaches pursued to date by economic development policies, as it considers human capital as a creation of wealth.

Managerial training becomes the most important tool through which those who govern the enterprise can learn the knowledge necessary to build an organizational structure oriented to the creation of value. Taking this path is no longer an option but a necessity.

1.1.2 Performance Change Pathway

The Dale Carnegie experience engages learners from the initial contact through follow-up and support to reinforce key behaviors. The methodology supports the development of skills and habits needed to sustain performance change. The pathway shows the deliberate approach to create training programs that drive improved performance. Dale Carnegie's Performance Change Pathway is made of five key components: Input, Awareness, Experience, Sustainment, and Output.

Figure 21: Carnegie's Performance Change Pathway

1.2 Dale Carnegie Business Model Canvas

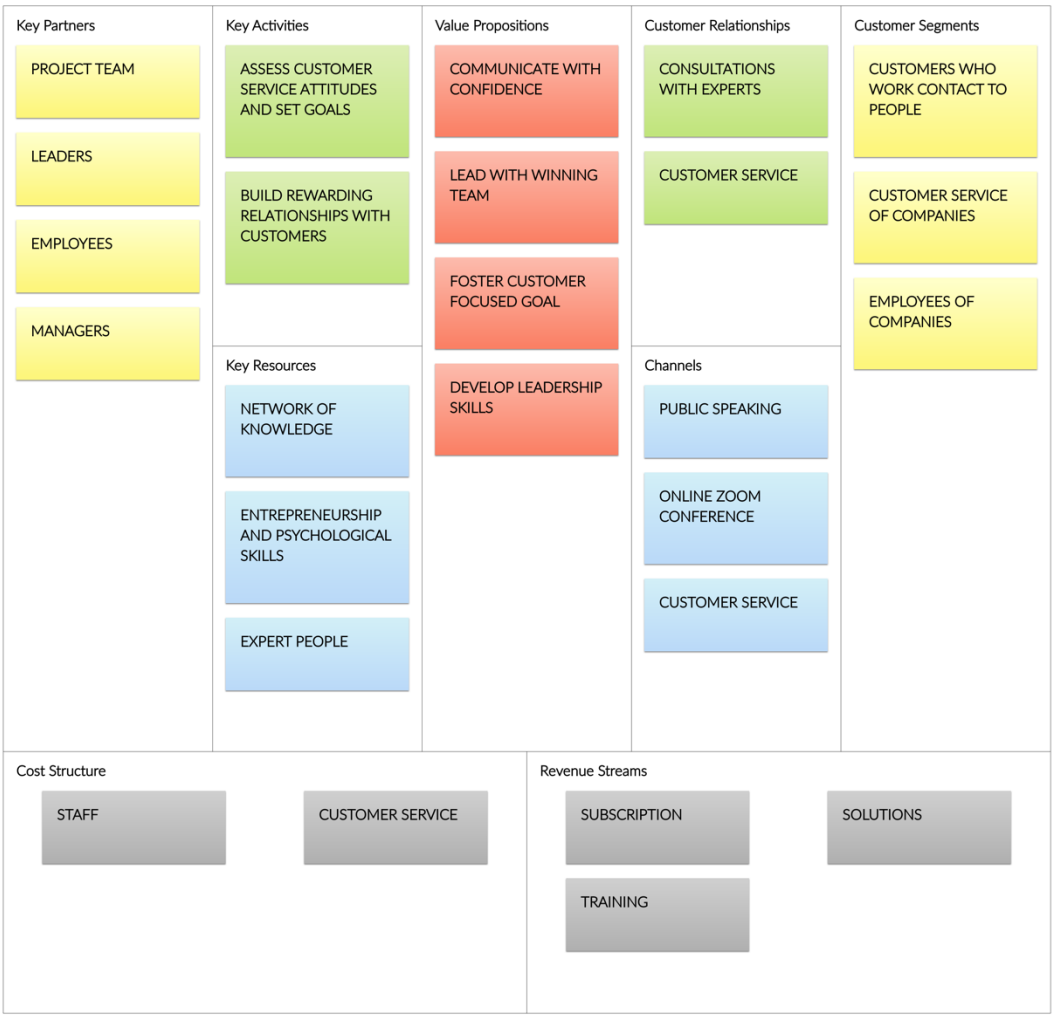

Table 4: BMC of Dale Carnegie

Key Partners

As for the main key partners, there are the users of the services that can be individual or team. You can identify leaders, employees, managers. Teams of experienced entrepreneurs help their customers achieve their goals.

Key Activities

As just proposed before, the key points of the business model regard providing solutions for the clients, like firms, managers, employers… Dale Carnegie offers a series of training programs that are developed at all levels of the company, with the aim of increasing skills, discovering talent, and creating the right environment and attitude.

Key Resources

To identify key resources, we need to analyze the physical and intellectual resources. First, the physical ones are the texts and helpful tips booklet. The most important intellectual resource is the capability and knowledge about entrepreneurship experts.
The training programs include inter-company courses, on-demand solutions, global solutions, and speech.

Value Propositions

The most important value proposition of this applications is to foster customer focused goal, communicating with confidence, leading with winning team to develop leadership skills.
He was strongly convinced that every person can grow personally and professionally if motivated, educated and trained to make more use of their abilities and the natural talents they possess.

Customer Relationships

The service that these applications offer has the advantage of being, in essence, a new way of obtaining skills and confidence. Customers' user can receive a consultation from experts, and they can contact a customer service asking information about the services to satisfy their needs.

Customer Segments

The customers involved are all people work contact to people so they need to improve communication skills, customer services of companies and employees to get many interact capabilities. Customer experience training is critical for some organization that works with people. Not only does every interaction between employee and customer affect the number of actual customers, but employees with effective customer service skills feel a greater sense of value and commitment in their work. These skills leave a positive mark on the minds of current and future customers, as well as the employees who use them.

Channels

Channels are the contact points between the company and its customers. There are mainly two types: public speaking in person and through Online Zoom conferences.

Cost Structure

The costs of experts which make availability their knowledge to customers to help them and all people engaged. To receive the best and adapt services, customers can get help through a Customer Service.

Revenue Streams

The prevailing source of revenues for this type of app involves the sale of services like consultations, class training, books, or subscriptions of users. The customers would be willing to pay a small monthly subscription to use all the services. Each expert could make additional and private workout sessions and for each consultation a commission fee for the app makes revenues.

1.3 Harris Teeter

Harris Teeter partnered with Dale Carnegie to offer employees Dale Carnegie Unlimited, a live online learning subscription with a robust schedule that offered both the flexibility of online training and the effectiveness of live, instructor-led social learning experiences.

Dale Carnegie developed skill building pathways appropriate to employees in different phases of their career to empower various levels of leaders across the organization. One of those pathways is Harris Teeter's Manager Development Program (MDP), which empowers every new manager to complete a series of courses in Dale Carnegie Unlimited to graduate from the MDP.

To simplify the process for Harris Teeter, Dale Carnegie's support team worked to build a solution that provided automated access to learner progress as well as a robust, internal rollout plan with ongoing communication to respond to learner needs as they transitioned to new positions.

Figure 14: Challenges of Harris Teeter with Dale Carnegie

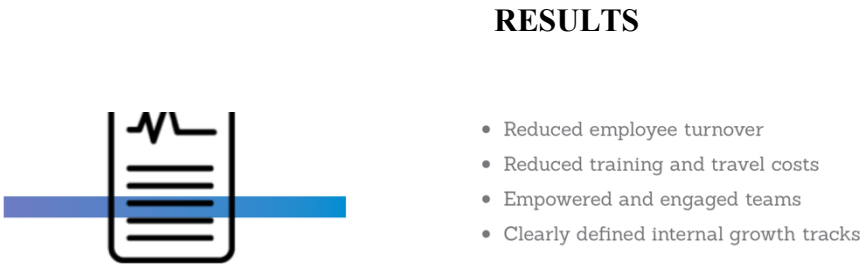

Figure 15: Results of Harris Teeter with Dale Carnegie

2. Case Study Herbalife

2.1 Introduction

Herbalife was founded in 1980 by Mark Reynolds Hughes; it is a nutritional company which aids in the lifestyle and weight management of many people. Their main objective has always been focused on changing people's lives by meeting the needs of every individual to provide them with a healthy lifestyle. Herbalife has changed the lives of many people, of any age by providing nutritional and energy supplements and personal care products, using all natural herbs and resources. Starting from the headquarters of Beverly Hills, California, Herbalife is busily expanding its operation internationally in 73 countries to continuously provide its service to people everyone in the world.

Aside from the research, Herbalife has not only served the society but our planet Earth well, by their own Corporate Social Responsibility program which upholds a value of, "'We do the right, honest and ethical thing." With this value in their heart, Herbalife has also helped in saving Mother Earth in every way that they could. Promoting the 3Rs, they believe in taking personal responsibility and making their decisions by always thinking about the consequences in everything that they do.

Herbalife has also been concerned for the needy of many children. Mark Hughes created a Herbalife Family Foundation (HFF) that is dedicated improving the lives of many children by providing them with the proper healthy nutrition. HFF has also shown continuous support in disaster reliefs over the years.

Lastly, Herbalife has never failed to support their employees with a healthy and active lifestyle. By showering them with complimentary products and lowering their health insurance costs, Herbalife has always been keeping their employees at a pink of health.

2.1.1 Products

Herbalife products are based on vitamins, minerals, nutrients, enzymes, and other ingredients intended to support a healthy and active lifestyle.
Doctors and scientists have a role in product research and development; the company relies on the advice of an internal scientific council on nutrition, composed of international experts, including the Nobel Prize in Medicine, Luis Ignarro.

Herbalife's catalogue offers consumers a wide range of products in various categories, including mixtures for meal replacements, bars, dietary supplements, and a line of skin care products. The bars and smoothies are offered in a rather varied range of flavors. Some also have allergy-free, gluten-free, lactose-free, and soy-free versions.

The catalog places particular emphasis on specific products and product combinations for goals, including loss, maintenance, or weight gain, or improving athletic performance. Some

products are also available in single-use packaging for use on the go or on the go. As for the product, this company seems in effect legitimate, but if you are just interested in business opportunity, and recruitment, there are better options out there for you, and you will avoid getting Herbalife in trouble, more interested in distributing its products than in recruiting new appointees who hope to get rich in one night.

2.2 Herbalife Business Model

As anticipated, Herbalife is a *network marketing* company on the market. An opportunity to earn money from home that involves the purchase of products that people can use as a sample, or for personal use, based on the attempted sale by copying commission directly to the end customer. In addition, they can also earn from the direct sales of people they will recruit as a seller for the same company.
New members can choose between two packages, to enroll as an appointee, the cost of which is between 100 and 150 euros (depending on your country of residence). Those who make Herbalife to earn money and not to consume, could buy products wholesale rather than retail, for personal use or for resale to third parties. According to the materials available on the Herbalife website, about 20% of Herbalife's distributors develop sales facilities; 80% would buy for personal use only. No commission is guaranteed for sponsoring new members. That is why the company prefers to focus on the self-consumption of each new distributor recruited. Distributors who decide to develop their own structure, their own network of distributors, are supported by training and monthly meetings.
Online resources for members include product information, online training resources, sales materials, and old school marketing (name list, word of mouth).
However, according to data, only the 0,1% of participants have high wages.

Figure 16: Wages of Herbalife participants

2.3 Herbalife Business Model Canvas

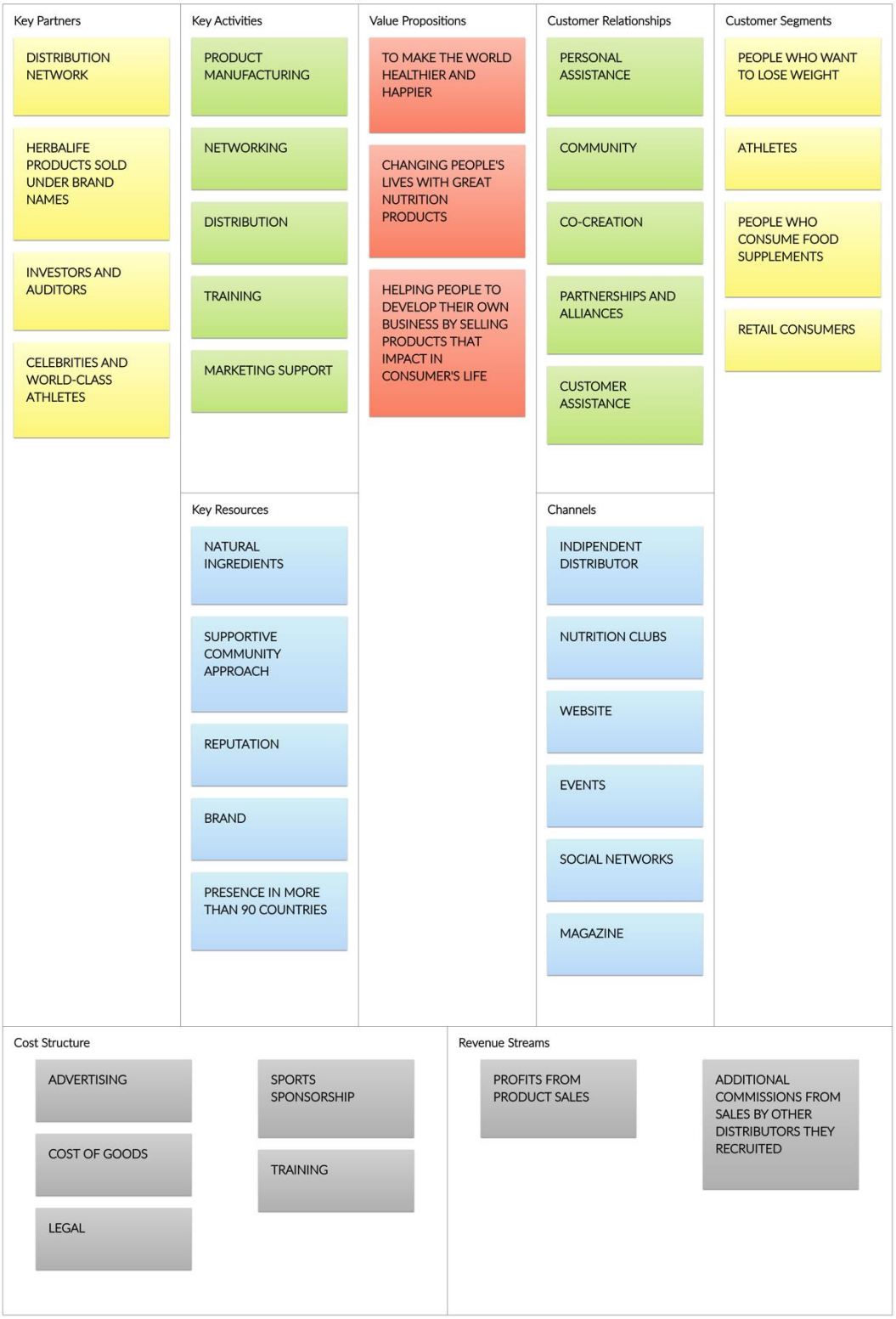

Table 5: BMC of Herbalife

Key Partners

The main actors that take part in the business model are distribution networks. All people who want to become investors and earn from Herbalife become partners of the company. To make Herbalife famous, the company can engage celebrities and world-class athletes.

Key Activities

The key activities of the business model regard product manufacturing with natural ingredients and do networking through different channels. After these are prepared, they can be sold directly to the customer's home.

Key Resources

To identify key resources, we need to analyze the physical and intellectual resources. First, the most relevant physical ones are the use of natural ingredients for the products and the presence In more than 90 countries. The most important intellectual resource is a supportive community approach and a good reputation of the company.

Value Propositions

The most important value proposition is helping people to develop their own business by selling products that impact in consumer's life. Customers can change their way to live with better nutrition products. It promotes a healthy lifestyle through a correct and balanced diet. Eating in a correct way brings people to keep themself fit and fighting food diseases.

Customer Relationships

The service that this company offers is a direct personal assistance. The most relevant relationship is the *direct selling*. Direct selling refers to a situation in which a company's goods are immediately accessible from the manufacturer or service provider rather than via intermediate channels. The business avoids the retail margin and any extra expenses connected with the intermediaries in this manner. These savings may be passed on to the client, establishing a consistent sales experience. Furthermore, such intimate touch may help to strengthen client connections. Finally, direct selling benefits consumers by providing convenience and service, such as personal demonstrations and explanations of goods, home delivery, and substantial satisfaction guarantees.

Customer Segments

The main customers are all people who want to lose weight and who want to consume food supplements. Often people with food problems have special needs and difficulties in finding certain products and these services try to meet and help their needs as much as possible. Another category to which they are addressed are athletes and retail consumers.

Channels

Channels are the contact points between the company and its customers. There are two types of channels: direct channels of property of the application like the website and indirect channels not of property but used to make revenues like independent distributors, nutrition club, public events, social networks, and magazines.

Cost Structure

The costs of goods and their production are the most relevant. In addition, advertising this marketing to make it known to as many audiences as possible has a cost that must be borne. Sports sponsorship and training are other important costs.
There are some costs for legal studios to ensure protection to the company.

Revenue Streams

Revenue occurs in various forms, but each iteration includes the sharing of operational gains or losses amongst connected financial players. Occasionally, revenue sharing is utilized as an incentive program for example, a small company owner may pay partners or colleagues a percentage-based commission for recommending new clients. Occasionally, revenue sharing is utilized to share the earnings generated by a corporate partnership.

Chapter 5

1. Development of GoodLife

1.1 The idea

As you can see from the analysis carried out in previous chapters, eating well, exercising, taking care of yourself and being optimistic are four fundamental things to live at best and the better ways to have a long and healthy life. Since prehistoric times, human being has always sought ways to extend life.

In recent years mobile applications are become increasingly indispensable, in fact they help us in many daily activities, giving us advice, suggestions and personalized reminders. Some programs can help us stay fit, control sports performance, power, and monitor some vital functions, such as heart rate and quality of rest.

The birth of this thesis starts from here: directing the search for secrets to extend life to the technological development used in everyday life. This is how *GoodLife* is created.

Figure 17: GoodLife application logo

1.2 The aim

The main aim of this thesis is to study how to *lengthen the life expectancy* through a *personal awareness* of the importance of own health and the *use of the technological devices* of the everyday life.

Depending on the purpose for which the application will be built, GoodLife creates two different versions *(A1 and B1)* of the application with different technology and business model. In this thesis, GoodLife has two main objectives:

- *Social support*
- *Commercial use*

2. GoodLife Version A1

2.1 The goal

The first version of GoodLife application is called *Version A1* and its aim is for social support. What is *social support* and why is it so important? Social support is a very general concept, certainly very complex, difficult to define or to enclose in a single definition.
The most common definition used is to consider the social support as the degree to which a person's basic social needs (affection, esteem, approval, sense of belonging, identity, and security) are gratified through interaction with other people who provide emotional or instrumental help.

This version of the application aims to target social support to people with cancer or to people who have just healed or who are highly likely to develop the disease due to genetic or other problems.

According to these three categories the app is aimed, the goals are the following:

- *Cure and monitor,* help people with diseases to monitor their state of health;
- *Raise awareness,* help people who have just healed from cancer to have greater awareness to prevent cancer returning;
- *Prevent,* help people who are highly to develop diseases giving them advice on how to stay healthy.

2.2 Technology

The main idea is to design and build a Goodlife web application, not publicly exposed but only accessible from research institutions, nursing homes and associations, to protect sensitive patient data and to have a more efficient communication between the hospital and patients in a quick and convenient way.

Through the application and use of a device such as smartwatches, patients must also be able to be monitored at a constant distance, through the main services that the application will offer. Doctors will be able to interact directly with patients by GoodLife. Patients can also send medical examinations to other facilities and place them in a virtual medical record that is visible to both doctors and patients.

Patients who have just recovered from cancer or other diseases often need to be more sensitive to the reason they are ill. In fact, often the causes are the bad habits that the patient had such as food, sports or psychological. Through the application they can be both monitored to avoid the onset of cancer and to be monitored and recommended on their daily habits.
People who have more genetic or familial predispositions to having a disease like cancer must have a huge awareness of the causes that lead to the disease, and it is essential that they prevent it through information. The GoodLife application can advise on proper daily habits and correct bad ones to minimize the likelihood of the occurrence of the disease.

Figure 18: Interactions between the patient equipped with a smartwatch, GoodLife application and research institutions and nursing homes

2.3 Version A1 Business Model Canvas

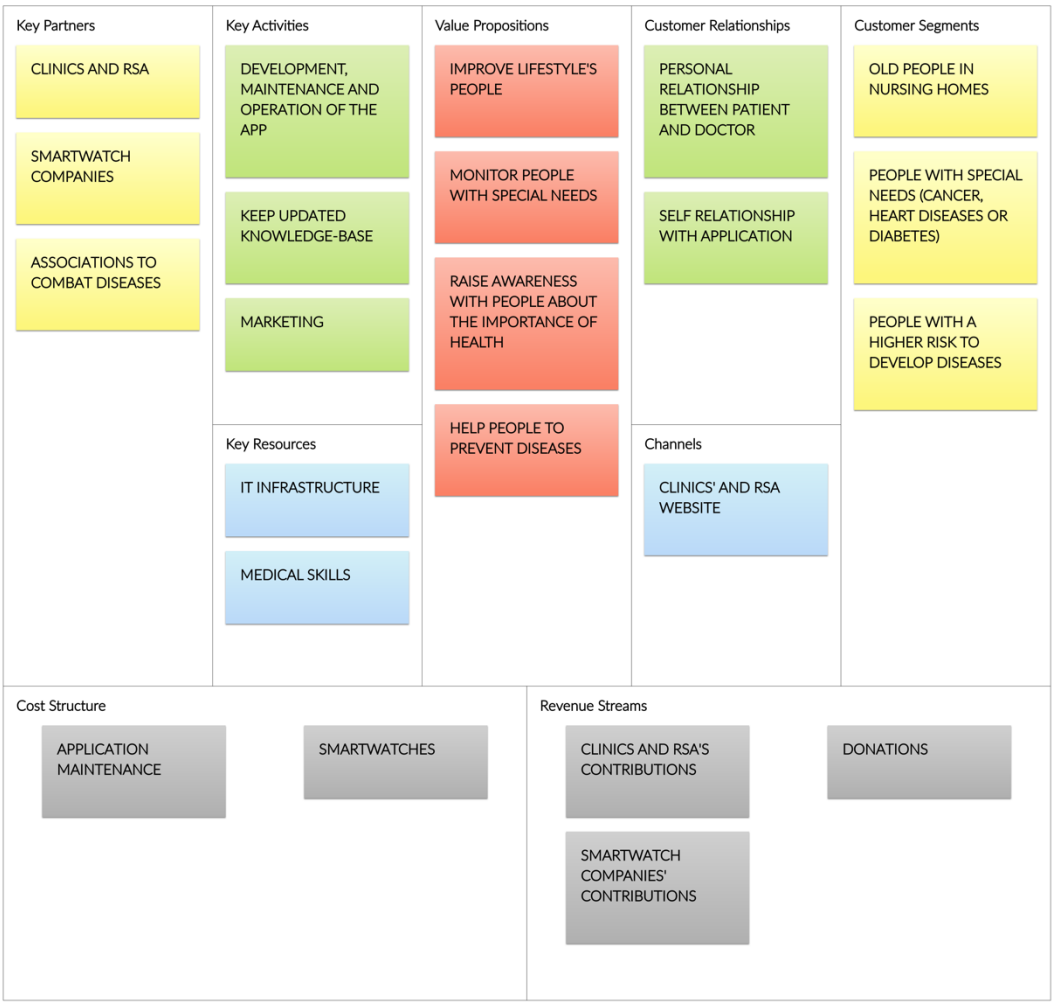

Table 6: BMC of GoodLife Version A1

Key Partners

The main actors that take part in the business model are:

- *Research institutions, nursing homes and RSA*, which want to improve their services to help patients and customers. Goodlife will rely on this version of the application at the institute. Patients can download GoodLife application to be monitored by the hospital. In Italy there are about 7372 nursing homes and 88 research institutes.

- *Smartwatch companies,* which sell their devices that will monitor and send to hospital the acquired data.

- *Associations* linked to the fight against the cancer can spread and share the benefits of the applications and help patients in its use.

Key Activities

The most relevant activities of GoodLife application are:

- *Development and maintenance of the application,* GoodLife application can advise on proper daily habits and correct bad ones to minimize the likelihood of the occurrence of the disease.

- *Knowledgebase,* keeping updated database of medical and health information. Medical advice is constantly evolving and is never static. Thanks to new medical and scientific discoveries, new needs arise that must be integrated into the database.

- *Marketing,* through strategies to make the service known to clinics and RSA. Organize conferences, presentation videos, slides and doctors who are able to present and manage the service.

Key Resources

To identify key resources, we need to analyze two types of the physical and intellectual resources.

- *Physical resources,* that is the network of GoodLife, its database, and an IT infrastructure.

- *Intellectual resources,* first there are capability and knowledge of the doctors. With the use of the application, a faster communication with patients is improved.

Value Propositions

This version of the application aims to target *social support* to people with diseases or to people who have just healed or who are highly likely to develop the disease due to genetic or other problems. According to these three categories the app is aimed, the goals are the *cure and monitoring* of people to control their state of health, raising awareness of people who have just healed from diseases to have greater awareness to avoid diseases returning and prevent who are highly to develop them giving them advice on how to stay healthy.

Customer Relationships

The service that this application offers has the advantage of being, in essence, a new way of obtaining a service that has existed in medicine since the specializations were introduced: the opinion of a more experienced colleague in a specific therapeutic field. Patients' user can receive a consultation through GoodLife wherever they are. Therefore, the relationship between doctors and patients is improved.

Customer Segments

The main customers segments of this version of the application aims to target social support to people:

- *Old people in nursing homes,* who have poor health conditions and who can improve their habits to avoid the onset of diseases and prevent premature aging. The latest available data say that in our country about 2% of over 65 years old are hospitalized in residential facilities, 1.8% in healthcare homes (Rsa). The total of this category is about 494,000 people. The elderly is cared for with integrated home care.

- *People with special needs*, that is all those people who suffer from severe forms of diseases like cancer, heart diseases or diabetes, who need to be monitored by hospitals.

- *People at risk of developing diseases,* due to genetic malformations that may increase the risk of the occurrence of severe diseases and that must make regular checks for prevention.

Channels

Channels are the contact points between the company and its customers. There is essentially two main *direct channel* of GoodLife application and research institutions, nursing homes and associations.

Cost Structure

Maintaining apps comes at a cost, such as supporting a database, frequent updates, and new challenges to always help patients and to improve the communication and the monitoring. The cost of bracelets to monitor the health of patients is borne by GoodLife. For starters, as an investment you can think of a limited amount of 100 pieces.

Revenue Streams

The Revenue Streams describes the revenue streams that can be obtained mainly from research institutions, nursing homes and associations through funding and from Smartwatches Companies for the sponsorship and usage of their products by patients. People and associations can be donations to GoodLife application to improve the functionality of their services.

3. GoodLife Version B1

3.1 The goal

The second version of GoodLife application is called *Version B1,* and its aim is for *commercial use*. A version of the application thought for all people want to take care of themself and improve their quality of life.

The target of this version is aimed, first, to *everyone want to change their lifestyle.* GoodLife wants to be as inclusive as possible without leaving anyone behind because everyone can decide to become aware of their lifestyle and to be able to improve it through the application.

However, to improve the services and try to satisfy customers in the best possible way, it is necessary to try to create categories of audience to which it is addressed. Each category will have special needs and some services will be more in demand than others with other types of needs.

3.2 Technology

The main idea is to design and build a Goodlife web application publicly exposed and therefore accessible from everyone. Customers must have the possibility to download the app from the most famous market as Apple Store or Google Play.

For a correct use of GoodLife, customers must synchronize the app on their smartphone with devices like smartwatches which can monitor health conditions of customers giving them the best advice possible. The services, as exposed in the next chapters, are subdivided into levels and customers, according to the level they choose, will receive a different degree of service.

For these reasons, the users of Version B1 are:

- *Customers,* that is athletes, people want to keep fit…
- *GoodLife Coaches,* that is doctors, nutritionists, and personal trainers.

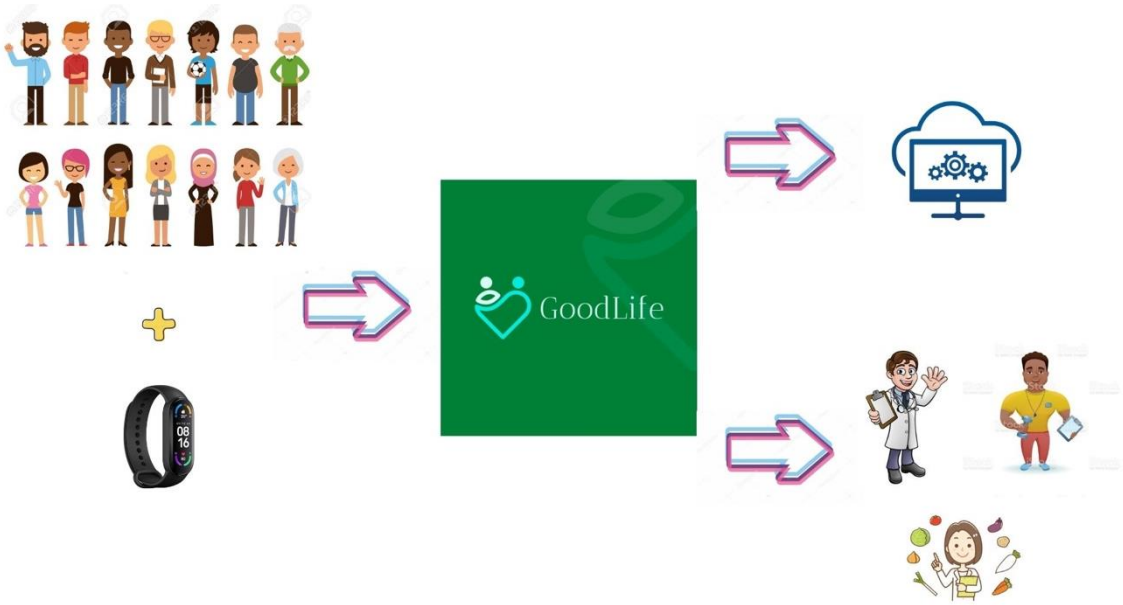

Figure 19: Interactions between customers, the application, GoodLife Coaches and IS

3.3 GoodLife Coaches

Staff training is an important topic for the companies. Quality training is essential to facilitate the meeting between the needs of the customer and the skills and knowledge of professionals to help them.

In order to guarantee a more efficient service, it is necessary to have specialized personnel who take care of the clients and patients directly. In addition to the qualifications listed in the table above, specific courses are needed to train them at 360 degrees. Once they have been trained, the persons concerned obtain a certificate by means of a final examination, which must be renewed every year. Then a new reference figure is created, namely the *GoodLife Coaches*.

GoodLife highlighted three main figures as coaches:

- *Doctors*
- *Nutritionists*
- *Trainers*

3.3.1 Requirements

In the following table are presented the requirements, understood as qualifications, of all three categories of Goodlife coach.

DOCTORS	***NUTRITIONISTS***	***TRAINERS***
Master's Degree in Medicine and Surgery Specialist Degree (dermatology, oncology...)	Master's Degree in Biology or Nutrition Sciences	Master's Degree in Physical Education

Table 7: Requirements of GoodLife Coaches

3.3.2 Training Courses

To train professionals who will take care of customers and patients, a *general course* will be created for all three figures of GoodLife Coaches. The training course will be based on *Luigi Fontana's method*. Specialized professors will take care of the lessons for the training courses.

The courses will be held in locations indicated by the organizers that may be universities, such as the Polytechnic of Turin, or private locations such as clinics or training centers.
The training courses will have a total duration of *56 hours*, like an university course of 8 CFU, and as a reference textbook there will be "*The Path to Longevity" of Luigi Fontana*, this in addition to the varied material provided by the various teachers. The cost of the courses will be borne by future coach unless it becomes a course offered by all public universities.

Below there is a brochure containing the information of one of the future training courses.

Figure 20: Brochure of GoodLife Training Course

3.3.3 Refresher Courses

Every year, Goodlife coaches, if they want to maintain their professional qualification, need to attend an *8-hour refresher course*. It will serve to update the coaches of medical and technological developments thanks also to the trials that are carried out every year around the world.

The courses will be held in locations indicated by the organizers that may be universities, such as the Polytechnic of Turin, or private locations such as clinics or training centers. The cost of the courses will be borne by future coach unless it becomes a course offered by all public universities.

Below there is a brochure containing the information of one of the future training courses.

Figure 21: Brochure of GoodLife Refresher Course

3.4 Sections

After research presented in the previous chapters on the various existing apps in circulation and the data about general health conditions among populations, I can identify three main business categories inside the GoodLife application regarding:

- *Health*
- *Food*
- *Fitness*

Figure 22: Customer user interface with sections

3.4.1 Health

Health data is measured via the smartwatch and is synchronized with GoodLife via a Bluetooth system. They are sorted by date and placed in a *virtual health record* of the user.

Figure 23: GoodLife Health Section

GoodLife Health Database

This service offers the user useful advice on health and disease prevention. Some habits are to be avoided and through careful explanation and illustration of them. People receive useful advice on how to change their bad habits.

Heart rate and ECG

One of the most important services of GoodLife application is the *heart rate measurement.* With this function, people can control the heart rate whenever want. After opening the app and wait for the smartwatch to measure the heart rate. People can also control the resting heart rate while walking, breathing, training, and recovering throughout the day.

Many devices make an ECG too. They track an electrocardiogram that records electrical signals that allow the heart to beat. By controlling these pulses, the app detects the heart rate and checks whether the upper and lower cavities of the heart are synchronized. Lack of synchronization may be a symptom of atrial fibrillation.

O_2 Levels

Through sensors integrated in the smartwatches, they can measure the O2 levels in blood. This is very important specially during Covid-19 period. The level of oxygen in the blood represents the percentage of oxygen that the red blood cells carry from the lungs to the rest of the body. Knowing this information can help you understand your overall health status.

VO_2 max test

The calculation is based on a combination of personal historical information and data collected during sports activities by smartwatch. Motion speed and heart rate data are used to investigate the relationship between internal and external workloads; in other words, how hard your body is working to produce your performance.

Sleep monitoring

This service is important to monitor sleep hours and its quality. Sleeping long and well has been shown to bring great health benefits such as reducing stress and preventing heart disease.

Mood journal

GoodLife helps the users take care of their mental health. It might be useful for those people with anxiety or depression. The app contains a *mood journal*: it regularly asks you questions, answering which helps you track your emotional state and observe how your emotional state changes in relation to other areas in your life. The app analyzes your answers, produces reports about your wellbeing and mental health, and gives you insights into your mood patterns and correlations.

GoodLife Coaches Medical consultations

In the premium level of the application, users have the opportunity to contact a GoodLife Coach 10 minutes a week to get an update on their performance and any improvements or deteriorations. In addition, GoodLife Coaches can register as qualified personnel and propose their curriculum and availability for those who would like to have paid consultations. Through the app, they organize a consultation that must be paid to GoodLife. The application will pay the coach what is due by retaining a commission.
Therefore, patients can book a consultation which specialists they need. Data transmission, like medical exams, can be automated or performed manually by the patient. Patients and doctors can actively exchange information to ensure not only the treatment of the pathology, but also the prevention of potential aggravation.

3.4.2 Food

The data must be entered manually by the user in GoodLife application, and he must indicate what he eats, the quantities and as much information as possible about the product. They are sorted by date and placed in a *virtual food record* of the user.

Figure 24: GoodLife Food Section

GoodLife Food Database

This service offers the user useful advice on food, diet, and recipes with ingredients of high quality. Information about disease prevention is important too and offered for this reason. Some habits are to be avoided and through careful explanation and illustration of them. People receive useful advice on how to change their bad habits.

Food products information

This type of service allows people to know what they are eating, simplifying the complex food labels: just scan the barcode to have the ingredients present and the nutritional values of the product. The app scores from zero to one hundred based on how healthy a product is, whether it is suitable for celiac or for those who are lactose intolerant and provides a list of similar but healthier products.

Calorie counting

GoodLife app personalized guide to health and healthy lifestyles. People can calculate how many calories they are taking and have a personalized plan to keep fit or to lose weight with personalized recipes, workout and nutrition tips that will help people keep your health in check.

Healthy routine

This section gives you a choice of healthy routines and allows you to select any of the goals you want to focus on: feel more energized, lose weight, sleep better, or focus and concentrate. It starts people off with something easy, such as having a glass of water every day after people wake up. Every morning, it sends notifications, reminding to drink some water at the time they specify. After three days of doing this first task, the app unlocks the possibility of adding the next habit people want to acquire. There are also activities the app offers meditation to feeling less stressed.

GoodLife Coaches Nutritionist consultations

In the premium level of the application, users have the opportunity to contact a GoodLife Coach 10 minutes a week to get an update on their performance and any improvements or deteriorations. In addition, GoodLife Coaches can register as qualified personnel and propose their curriculum and availability for those who would like to have paid consultations. Through the app, they organize a consultation that must be paid to GoodLife. The application will pay the coach what is due by retaining a commission.
Therefore, users can book a consultation with a nutritionist. Data transmission, like weight, can be automated or performed manually by the patient.

3.4.3 Fitness

Fitness data is measured via the smartwatch and is synchronized with GoodLife via a Bluetooth system. They are sorted by date and placed in a *virtual fitness record* of the user.

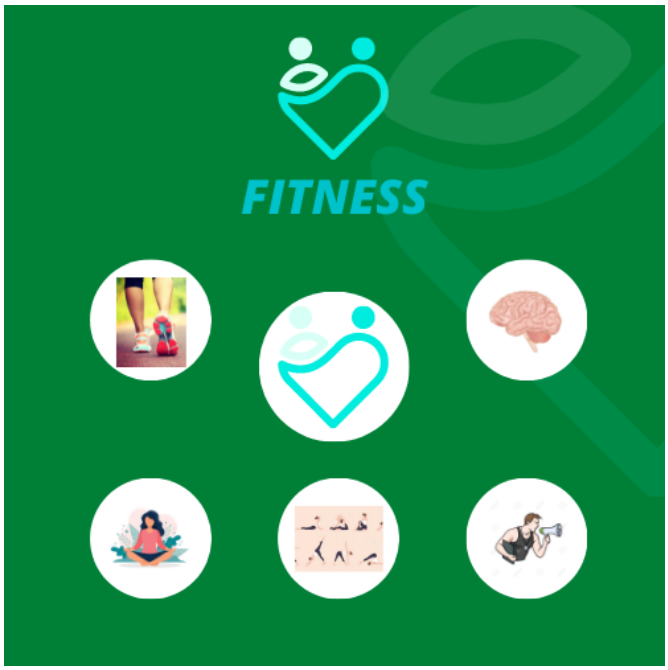

Figure 25: GoodLife Fitness Section

GoodLife Fitness Database

This service offers the user useful advice on health and disease prevention with *correct fitness exercises* every day. Some habits are to be avoided and through careful explanation and illustration of them. People receive useful advice on how to change their bad habits.

Pedometer

GoodLife pedometer uses the integrated sensor of the smartphone or smartwatch to count steps. It also keeps track of calories burned, distance traveled and time, etc. All information will be shown through clear graphs.
You can set goals for your daily steps. You can easily check the statistics of the series to keep you motivated.

Meditation

The application reminds you during the day to take a minute with yourself and to relax and take long breaths. By means of smartwatch pulses, a guide in breathing and heart rate monitoring, the user receives a treatment that improves his daily performance, useful especially in times of increased stress.

Yoga

A Yoga section is integrated with many with video tutorials, simple instructions, and exercises well explained also for who have never tried this activity. Yoga combines sweat and meditation.

Brain training

The brain training section is designed to improve people memory.
Young and old users have been looking for brain training games to improve their mental functioning improve response time, and logic skills.

GoodLife Coaches Personal Trainer consultations

In the premium level of the application, users have the opportunity to contact a GoodLife Coach 10 minutes a week to get an update on their performance and any improvements or deteriorations. In addition, GoodLife Coaches can register as qualified personnel and propose their curriculum and availability for those who would like to have paid consultations. Through the app, they organize a consultation that must be paid to GoodLife. The application will pay the coach what is due by retaining a commission.
Users can interact with personal trainers who can better clarify some physical exercises, give advice on sports habits, or indicate which sport is most suitable for a person. If a user trains from home, he can be monitored remotely and helped.

3.5 Levels

In the previous paragraph have been listed all the services that the GoodLife application offers to its users. However, not all of them will be available for free. The app is then divided into *levels*, some of these free and some paid. Depending on the level you choose, you will receive a different service.

The levels of GoodLife are:

- *Free*
- *Premium Silver*
- *Premium Gold*

3.5.1 Free

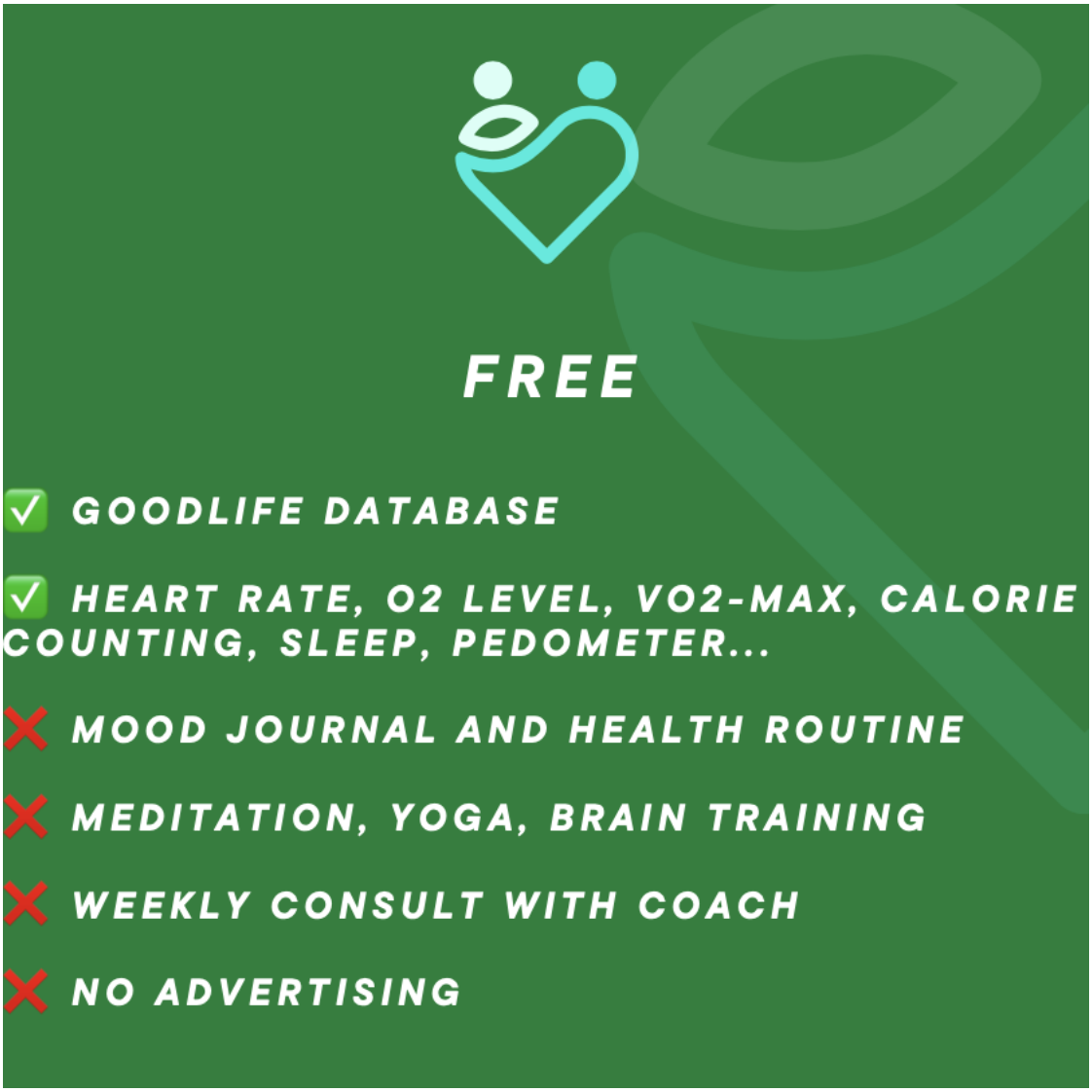

Figure 26: GoodLife Free Level

The *Free* subscription includes GoodLife database with tips on generic healthy lifestyles, recipes with health ingredients, sleep hours, fitness exercises...
Smartwatch, linked to the GoodLife app, send data of the user like heart rate oxygen level and they are registered inside tables. Users can book consult with one or more of the three GoodLife Coaches for a fee.
Advertisements are present and frequent.

3.5.2 Premium Silver

Figure 27: GoodLife Silver Premium Level

The *Premium Silver* subscription is an intermediate level between *Free* and *Premium Gold*. In addition to GoodLife database with tips and the registration of health data by smartwatch, the user has a diary in which to write down behaviors that may relate to, for example, miseating, intensive training, bad habits. These behaviors are linked to the data collected by smartwatch. The user has also the possibility to write what eats and training session every week. Moreover, there is a section of meditation and yoga with recorded and general tips. A brain training session is included with the possibility to make many plays and exercises like sudoku or memory exercises. Users can book consult with one or more of the three GoodLife Coaches for a fee.
Advertisements are present and frequent.

3.5.3 Premium Gold

Figure 28: GoodLife Premium Gold Level

The *Premium Gold* subscription is the maximum level with all services included. In addition to GoodLife database with tips, the registration of health data by smartwatch, the journal and health routine, meditation and yoga sessions, brain training exercises, the user has included in the service a consultation per week with one of the three GoodLife Coaches. In these sessions, the specialist has the opportunity to analyze the data collected within the application and give advice based on the goal people want to achieve. If a user desire extra consult can book more for a fee.
Advertisements are not present.

3.6 Comparison with competitors

In the previous chapters, business models offering services similar to GoodLife application have been analyzed. However, it can be noted that each competitor is focused primarily on one of the main macro-services like food, health or fitness. What is proposed to do GoodLife is to overcome this limitation and to unite all three sections. Each is closely linked to the others and as evidenced in the method of Luigi Fontana to achieve the goal of improving quality of life it doesn't need to exclude one.

The most relevant competitors are *Lifesum, mSafety and Fitbit.*

		mSafety	
Health, food and fitness Database	*Diet and food Database*	-	*Food and fitness Database*
Heart rate, ECG, O2, VO2max, calories, sleep and mood	*Calories*	*Heart rate, ECG, O2, VO2 max, calories, sleep*	*Heart rate, calories, sleep*
Journal routine	*Meal's routine*	*Medical record*	*Synced data*
Fitness session	-	-	-
Yoga and meditation	-	-	*Meditation*
Brain sessions	-	-	-
Coaches' consults	-	*Medical consults*	-
Free ***€ 9,99/month*** ***€ 29,99/month***	*Free* *€ 9,99/month*	*Free* *€ 19,99/month*	*Free* *€ 8,99/month*

Table 8: Comparison between GoodLife and main competitors

3.7 Version B1 Business Model Canvas

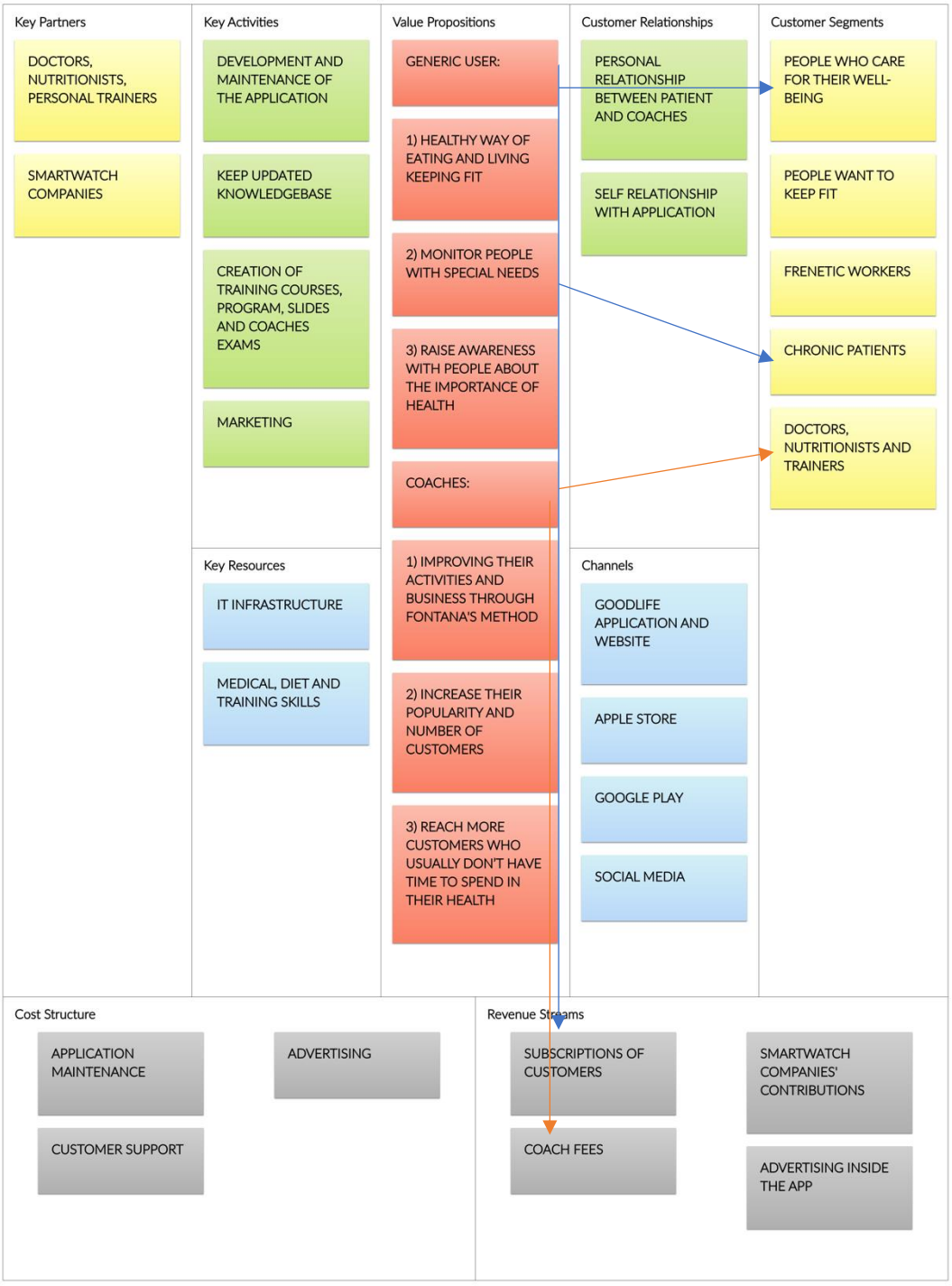

Table 9: BMC of GoodLife Version B1

Key Partners

The main actors that take part in the business model are:

- *Smartwatch companies,* which sell their devices that will monitor the acquired data. GoodLife application will have the possibility to give advice on the type of smartwatch to buy according to the smartphone in possession by the user. To enjoy a more reliable service, you need to have the most accurate device possible.

  Below, an analysis of the best devices chosen.

SMARTWATCH	***OPERATING SYSTEM***	***PRICE [€]***
APPLE WATCH 4+ 	*iOS devices*	From € 389,00
SAMSUNG WATCH 	*Android devices*	From € 159,00
AMAZFIT 	*iOS and Android devices*	From € 69,00

Table 10: Smartwatch devices according to GoodLife application

- *GoodLife Coaches,* that is doctors, nutritionists, and personal trainers. They are partners and, after having downloaded GoodLife application for free, they can sign up as coach's user. They provide their skills and training to offer the best services. Coaches could propose their availability for those who would like to have paid consultations or premium subscriptions. GoodLife will pay the coach what is due by

retaining a commission. In Italy, there are 403,454 doctors, 14,898 nutritionists and about 120,000 trainers.

Key Activities

The most relevant activities of GoodLife application are:

- *Development and maintenance of the application,* GoodLife application can advise on proper daily habits and correct bad ones to minimize the likelihood of the occurrence of the disease.

- *Knowledgebase,* keeping updated database of medical and health information. Medical advice is constantly evolving and is never static. Thanks to new medical and scientific discoveries, new needs arise that must be integrated into the database.

- *Creation of training courses,* that is the presentation of a program to train coaches through lectures, books, slides, videos. In addition, it is necessary to create certification examinations for those who wish to specialize in this field.

- *Marketing,* through strategies to make the service known to clinics and RSA. Organize conferences, presentation videos, slides and doctors who are able to present and manage the service.

Key Resources

To identify key resources, we need to analyze two types of the physical and intellectual resources.

- *Physical resources,* that is the network of GoodLife, its database, and an IT infrastructure.

- *Intellectual resources,* first there are capability and knowledge of the coaches and specialists who help customers. With the use of the application, a faster communication between coaches, like doctors, and customers is improved.

Value Propositions

The first category of value propositions is about *generic users:*

- *Promoting a healthy lifestyle* improving active participation, and motivation of individuals to health.

- *Monitoring* people with special needs because of their diseases like cancer, heart diseases or diabetes to control their state of health.

- *Increase the awareness* of the importance of health for life through a correct lifestyle and good habits on how to stay healthy, improving quality of life.

The second category of value propositions is about *coaches:*

- *Improving their activities and business,* according to the principles of Fontana's method. They could adopt his advice and implement their services to people.

- *Increase their popularity,* publishing on the application the CV, their working methods, innovations, experiences in order to attract more customers.

- *Reach more customers,* who usually don't have time to spend in their health like frenetic workers.

Customer Relationships

The most important and relevant relationship is with GoodLife Coaches: through the application, customers can get advice from the GoodLife Database as free. If they pay, they can improve the services having the possibility to talk with a coach every week.
Customers can receive assistance though an active customer service.

Customer Segments

The main customers are all people of legal age able to make a subscription of services. The categories are the following:

- *People who care for their well-being,* that is all those people want to have a healthy lifestyle to led and who want to live as long as possible and well without diseases. According to a survey, almost one Italian in 2 (45%) puts health in the first three ingredients for the recipe of their happiness. For years Italians have become accustomed (to the extent that economic availability allows) to select the healthiest food to put on the table. 38% of consumers call themselves healthy and in 2021 40% say they will buy more fruits and vegetables and 30% more organic or biosalutist.

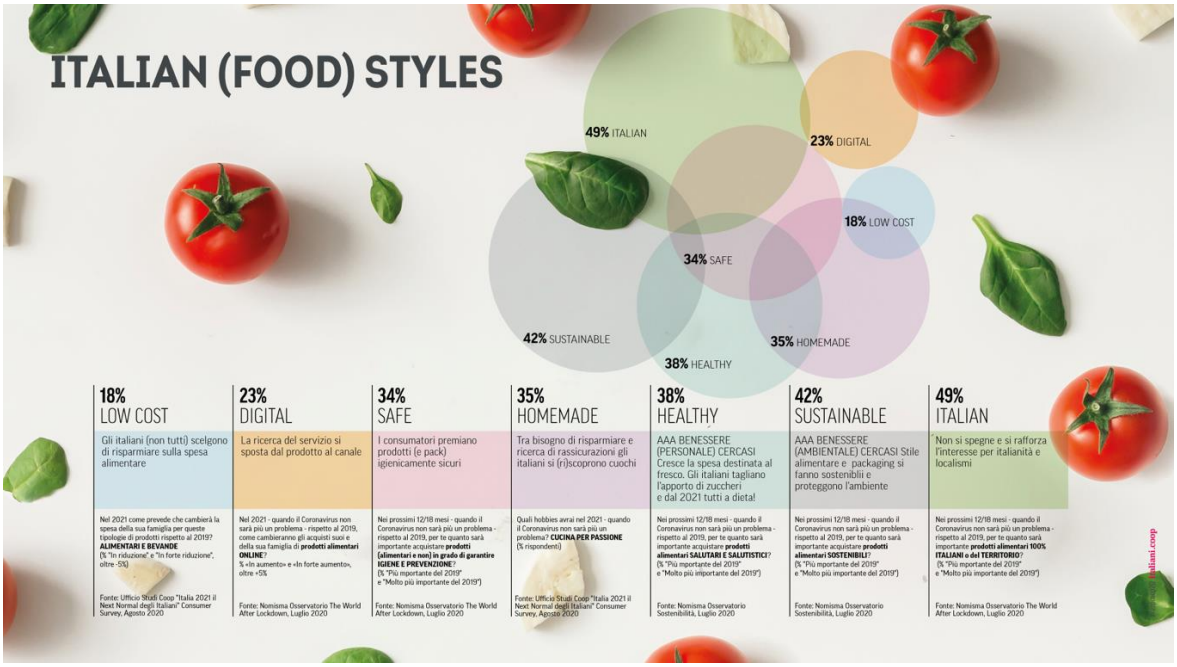

Figure 29: Italian Food styles and Venn diagram

- *People want to keep fit* are all those people who want to improve their quality of life, but who do not play competitive sports or who have difficulty in finding a suitable diet for them. In Italy are estimated in over 20 million people in three years and more who claim to practice one or more sports continuously (24.4%) or occasionally (9.8%).

- *Frenetic workers* are all those people who every day because of the frenzy of everyday life and often because of work do not have time to practice a lot of physical activity or to eat healthy or to find time to meditate with themselves. In Italy, the total number of workers in the year amounted to 25,630,000 and the majority of them lives a frenetic pace.

- *Chronic patients* are the last important customer segment, that is all those people who suffer from chronic diseases, such as diabetes or heart failure, who want to monitor their health by synchronizing with the smartwatch and receive advice on their habits and how to improve them. In Italy it can be estimated that over 14 million people live with a chronic disease, and of these 8.4 million are over 65.

- *Doctors, nutritionists and trainers* that is those professional figures want to improve their services through new healthy method.

Channels

Channels are the contact points between GoodLife applications and its customers. There are two types of channels:

- *direct channels* through GoodLife application.

- *indirect channels* not of property but used to make revenues like Apple Store and Google play to make available the app to be on the marketplaces. Social medias, like Facebook and Instagram, are used for advertising: it is also important to advertise the application through as many digital channels as possible, through nutritionists, gyms and make its existence known even through medical conferences.

Cost Structure

Maintaining apps comes at a cost, such as supporting a database, frequent updates, and new challenges to always help customers and to improve the communication and the monitoring. To advertise Goodlife application through previously channels is a cost.

Below, the *initial investment* required to start the application is shown in the following table.

DESCRIPTION	COST
iOS app development	€ 13200,00
Android app development	€ 13200,00
Advertising and Marketing	€ 6000,00
Total	**€ 32400,00**

Table 11: Initial investment of GoodLife application

The estimates for the development of both iOS and Android have been stretched by a team of online experts who have been given the indication of the creation of an application that has a good quality, an excellent custom interface, based on payment systems, registration systems through mail or social networks, the implementation of a system of control and administration and integration of the English language in addition to Italian. Estimates represent a general estimate that can vary by a +/- 10%.

Revenue Streams

The Revenue Streams describes the revenue streams that can be obtained mainly from and from the subscriptions of users and from GoodLife committees. One other important revenue stream is represented by Smartwatches Companies for the sponsorship and usage of their products by customers. The app can advise what are the best smartwatch devices to connect and based on the purchase and download of GoodLife it could agree on a percentage of revenue.
Advertising put inside the applications makes revenues and help people at the same time proposing food products for the customer's demands. There are two different advertising level according to subscription chosen. In the free version and the Premium Silver version, advertisements will be placed by third parties that will contribute to GoodLife revenues.

Chapter 6

1. Final considerations

The biggest challenge of this project thesis was to create an application whose goal is to help people discover simple behaviors that can persist in extending life and improving it. After a thorough analysis of the existing solutions on the market, GoodLife was presented, an innovative application based on the advice of Professor Luigi Fontana.

Homepage prototypes have been created and the main services that need to be included to get results have been presented. They were evidenced the possible costs and modalities of preparation for the new professional figure that would be created and modalities of subscription of the various users.

Technological development is advancing more and more and new challenges are emerging every day. Once financial well-being is achieved, the citizens of a country try to improve the condition more and more. However, in the end, every new challenge, every new advancement, every invention, or innovation always has the same goal: to improve, to help improve, to live better and to live longer.

Our existence on this planet is precarious, time passes and why not spend it if possible and in the best way? *GoodLife* could be a possible answer.

2. Future works

This thesis has created two different business models for this application. The next step is the development and implementation of the application at the IT level in a private way or in collaboration with universities, like Polytechnic of Turin.

The idea and the name GoodLife must also be patented. Finally, it needs to market the application via intranet channels for the first version and commercial channels such as Apple Store or Google Play for the second version to make it available to all users.

A first step could be taken in Italy at a geriatric center in Verona where monitoring and consumption could be tested with old people.

Goodlife could create a collaboration with IRCCS Candiolo Cancer Institute near Turin in Italy to help people with cancer to be helped and monitored.

Bibliography

"The Path to Longevity: How to Reach 100 with the Health and Stamina of a 40-Year-Old", Luigi Fontana, 2020

"Business Model Generation: A handbook for visionaries, game changers, and challengers", Alexander Osterwalder & Yves Pigneur, 2010

"How to Win Friends & Influence People", Dale Carnegie, 1936

"The Leader in You", Dale Carnegie, 1993

"*Il futuro della salute"*, Roberto Ascione, 2018

"mHealth, from smartphones to smart systems", Rick Krohn, David Metcalf, 2012

"Information security in Healthcare", Terrell W. Herzig, 2012

"Business models for eHealth", Valeri, L., Giesen, D., Jansen, P., & Klokgieters, K., 2010

"Telemedicine: History, applications, and impact on librarianship. Bulletin of the Medical Library Association", Zundel K. M., 1996

"Sei quel che mangi. Il cibo che salva la vita", Gene Stone e Michael Greger, 2015

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