PUML

# Fitness for Health

## DATA FOR REWARDS



WHITEPAPER V 2.0

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# Abstract

*PUML is a global health and fitness platform where data is securely stored and members receive token rewards for participation. This project is based on the EOS Blockchain protocol and has its own unique private distributed ledger.*

*PUML empowers its members with complete ownership of their valuable fitness data. It also provides ways to monetise this data through sponsored challenges, micro data rewards, staking events and 3rd party data offers.*

*In return for logging* ***Personal Units and Movement Levels*** *(PUML) the platform repays its members in an EOS based compliant Utility tokens (PUML) that can be exchanged for health and fitness products and services on the* ***PUML Marketplace.***

*All of this technology is interfaced in an easy to use mobile application, aiding mass adoption of blockchain technologies.*

***PUML aims to make the world MOVE MORE.***
*We can help move the needle on the obesity epidemic by further motivating fitness movement, data tracking and exercise as a medicine.*

# Contents

# Executive Summary

## *Industry Overview*

### Obesity, Disease, Healthcare Costs and Public Policy

Obesity, where people are very overweight, is often caused by eating too much and moving too little. It is an early indication of future chronic health problems including heart disease and stroke, high blood pressure, diabetes and some cancers. The level of obesity today is significant - about 20% of the adult population of the OECD is obese - and it is projected to increase significantly in the next decade. The increase in obesity will impact future obesity-related health-care expenses, which are expected to exceed US$1 trillion per year by 2025.

There is a growing awareness of obesity as an issue which requires government intervention. The World Health Organisation ("WHO") notes that "obesity is one of today's most blatantly visible – yet most neglected – public health problems". But despite government initiatives like food regulation, taxes and physical activity programs, obesity is still expected to increase. In the United States, the most obese nation in the world, nearly half of the population is expected to be obese by 2030..

More information about obesity, disease, healthcare and public policy is contained in the Industry Overview Section.

### Global Fitness Industry

The global fitness industry including health and sports clubs, gyms and personal trainers has emerged as a private sector response to increasing obesity. The health and sports clubs industry has grown to US$80 billion per annum, with more than 200,000 clubs and 170 million members.

Another significant recent trend is the usage of fitness tracking, smartwatches and other wearable devices. More than 100 million fitness trackers were sold in 2017, with about 30% of Americans now owning a fitness tracker and nearly half of these using them daily. It is expected that more than 400 million fitness trackers will be sold in 2022, an annualised growth rate of 24% per annum.

More information about the global fitness industry is contained in the Industry Overview Section.

### Personal Fitness Data

In line with the growth in fitness devices, there has been substantial growth in personal fitness data including steps, heart rates, blood oxygen level, skin temperature, perspiration, body weight and body mass. Scientific American calculates that terabytes of personal health data are currently amassed daily.

Part of the appeal of fitness devices is that it allows untrained people to gain knowledge about the workings of their own bodies. Another factor is social interaction, or the "quantified-self" movement.

Fitness devices are not completely accurate but are succeeding because of their motivational qualities. What the fitness devices do is to keep movement and sleep issues front-of-mind. Every time a person turns on their phone, the latest stats on their progress appears.

Brands, insurance companies and governments are increasingly interested in getting access to the massive amount of valuable personal health and fitness data. This a significant and emerging issue with consumers as many do not want to share their private data.

More information about personal fitness data is contained in the Industry Overview Section.

### Mobile Health and Data Security and Privacy

Mobile health ("mHealth"), people who use their mobile devices, for health purposes, is becoming increasingly common. More than half of people now want to interact with healthcare providers via their smartphones. The global digital health market is expected to reach US$206 billion by 2020, driven particularly by the mobile and wireless health market.

In parallel to the growth in mHealth, is a corresponding concern about data security and privacy. High profile data breaches, and emerging concern over the way the companies like Google and Facebook collect, store and use people's data, is raising awareness of data issues in the mHealth space.

It is still early days in the fitness data revolution, but security and privacy of people's personal fitness data is already an issue.

More information about mobile health and data security and privacy is contained in the Industry Overview Section.

## *Challenges and Opportunities*

The rapid adoption of mobile health technology combined with the significant increase in personal health data created by wearable devices presents an opportunity to tackle the obesity epidemic, especially for the younger, smartphone centric generation.

At the same time, the world is becoming increasingly aware of the privacy and security challenges of collecting, managing and using personal data.

### Challenges

#### *Obesity*

While it is clear there is an obesity epidemic and there will be significant healthcare impacts and costs. The real challenge is what can society do about it? On the one hand, people should be free to lead their own lives as they see fit. Is it the role of society to tell people they cannot be overweight? On the other hand, should the rest of society need to pay for someone's obesity-related healthcare problems? There is a public policy challenge to address obesity. Related to the public policy challenge, any solutions will inevitably involve spending more money today to save money in the future. This is a political and financial challenge.

It is important for us to strive for a healthier more productive society. Encouraging exercise and a healthier diet is the way to achieve this. However, motivating people to exercise at scale is challenging and there are no simple solutions.There is a role for government, health and fitness providers and corporations to address exercise motivation, but each of these segments has their challenges. Government health care systems do not operate on a preventative basis. Private health and fitness

providers understand that fitness motivation is expensive and personalized. Corporations need to be careful of discrimination against obese people.

***Fitness Data***

Collection of fitness data is challenging - different devices have different storage mechanisms and formats making it hard to integrate. Managing security and privacy of fitness data has all the challenges of managing data on the internet, with the added importance that health data is very private to the individual. And who should individual trust to look after their personal fitness data?

The use of personal fitness data is another data management challenge. To what extent should advertisers and insurance companies get access to people personal fitness data, and what is the compensation to the individual - free services or rewards?

## Opportunities

***Blockchain Technology***

Using the blockchain offers the opportunity to collect personal fitness data securely and provide complete control of the data to the individual. The blockchain directly addresses many of the data related challenges highlighted above.

Along with the blockchain, the creation of a universal fitness currency offers the opportunity to create a **fitness economy**, where everyone benefits from economies of scale and choice. Microtransactions for fitness data transaction can be enabled, digital loyalty programs, competitions and rewards can all be transacted in the token.

Collective rewards that groups of people work towards can be enabled via tokens, catering for a wide range of people's needs and offer the opportunity for a more inclusive approach to fitness and tackling obesity.

Gamification can also be enabled via tokens. It provides a layer of stickiness to the platform by engaging some users to participate more to receive visible status on the platform that can be seen by their friends and peers.

Importantly, tokens can be used to reward both individuals and society's collective fitness effort.

***Health and Fitness industry and Corporate Wellness***

mHealth and fitness data can also be used by the health and fitness industry to tailor better their products offering to individuals, lessen the marketing costs associated with acquiring customers and reducing the churn rates by offering better services including digital loyalty programs, competition and rewards. They can also offer the opportunity to redesign more effective and inclusive corporate wellness programs.

More information on challenges and opportunities is contained in the Challenges and Opportunities Section.

***The Problem***

The rapid adoption of smartphones, mHealth and fitness devices presents a significant and new opportunity to tackle obesity, which is still a growing problem and a challenge for society to solve.

The problem of using technology including fitness devices to solve the obesity epidemic is the effective collection management and use of personal fitness data. Without the appropriate foundation of data security and privacy, technology solutions will lose the trust of the people it is trying to help.

There is also the problem of how to motivate obese people specifically and the wider public more generally to exercise.

***The Solution***

PUML is a global open standard for fitness records. It's blockchain-based platform, normalises fitness data for integrity. Leveraging smart contract technology, it allows Sponsors to create, benefit and access fitness activity encouraging whole of market fitness participation and rewarding participants for effort and data access. Using authenticated fitness data records, PUML aims to move the needle on the obesity epidemic by motivating fitness effort in all forms.

The Company aims to build an inclusive global platform that rewards fitness for health. The PUML platform offers a solution to all the problems highlighted previously. Simply put, using a member-owned secure health & fitness record, PUML will help reward fitness activity and healthy lifestyle choices. In doing so this will give control back to the member, who can then choose how their data can be used and commercialised

More information on the PUML solution is contained in the Products and Service Section

## *Products and Services*

### Overview

The Company aims to build an inclusive global platform that rewards fitness for health. The PUML platform offers a solution to all the problems highlighted previously. Simply put, using a member-owned secure health & fitness record and rewarding fitness activity and healthy lifestyle choices. In doing so this provides control back to the member, who can then choose how their data can be used and commercialised.

The PUML ecosystem achieves this through the use of a number of technology services. The PUML Digital Health and Fitness record is a core service which processes fitness data into normalised units and stores them securely on an internal private side chain that is locked using the public EOS blockchain protocol. This allows us to store internal data on a distributed network that is privately protected but controlled by a public blockchain and asymmetrical cryptography.

Next, as data is validated by the Proof of Fitness Algorithm and Data Validator tokens are released from the corresponding smart contract, either directly as rewards from Sponsors such as gyms, events, challenges or as micro rewards from the PUML Better Health Academy.

Once PUML members have received PUML tokens they can redeem these for

digital products and services as supplied by brands, sponsors and corporates on the PUML Health and Fitness Marketplace. The Marketplace will be accessible via the PUML website and mobile apps and will allow transactions to take place where users can exchange the PUML tokens for real products and services such as Gym Memberships, Fitness apparel, Supplements, Digital Nutrition guides, workout videos, supplements and other health and fitness products.

All this technology will be available via the PUML mobile app where users can see their wallet balance, access their Digital Health and Fitness Record, purchase products, stake tokens for challenges and track their fitness improvements via the BMFI system. See the full technology platform and components in Technology section.

### *Sales and Marketing Strategy*

The companies that target customers come in three main types, members or individuals looking to be rewarded for fitness activity, sponsors who will pay members to participate in agreed challenges and service providers who will offer related products and services for sale on the platform.

The company will initially target gyms and personal trainers as both current products Zippy and Possible operate in those industries and understand the customer bases. These are natural customers to target to scale the business initially. Targeting these customers not only provides sponsors, but will drive members to the platform also. Sports and fitness brands will be next who can both serve as sponsors and service providers in the network. This will then offer members more challenges outside the gym or personal trainer that they attend. By virtue of having more challenges via sponsors and more products/services to redeem the next target customer will more members for scale.

More information on the sales and marketing strategy is contained in the Sales and Marketing Section.

## *Team*

The PUML team is made up of exceptional individuals with international experience from the Australia, UK, Switzerland, Vietnam and the US. There is solid commercial experience in engineering, technology, blockchain, fitness, marketing and product development.

One of the unique aspects of the team are our Co-CEOs, Damien and Adam. Both have founded startups in the UK and Australia. At PUML they now combine technical and product knowledge with marketing and digital growth hacking. Both are primarily commercially minded and have a combinded experience pool of over 35 years in Corporates and Startups. They know what its like to build and deliver platforms that solve problems, delight users and create revenues.

The advisor team is extremely strong with disciplines in all key areas, from blockchain, innovation, investment, medical, professors, revenue and finance. See the Team area in the whitepaper for full bios and experience.

## *Token Economics*

The PUML token is a Utility token that will give access to tiered membership, product services, marketplace, rewards, discounts and transactional benefits. The token supply is locked to 500Million Tokens, of which 46% will be sold as part of the private, pre and public sale. Full details of the Utility of the token, how you can earn token rewards, the actors and how to spend your tokens is located in the detailed sections of token ecomonics section of this document.

## *Roadmap*

The roadmap details the history of the PUML organisation and our expected deliverables for 2019/2020. This is a high level representation of projects, components and services we expect to be developed, tested and delivered to our PUML members. Please review the detailed section of this document and follow our Telegram channel for the latest information on how the team is measuring against the roadmap and expected deliverables.

# Industry Overview

## *Obesity, Disease and Healthcare Costs*

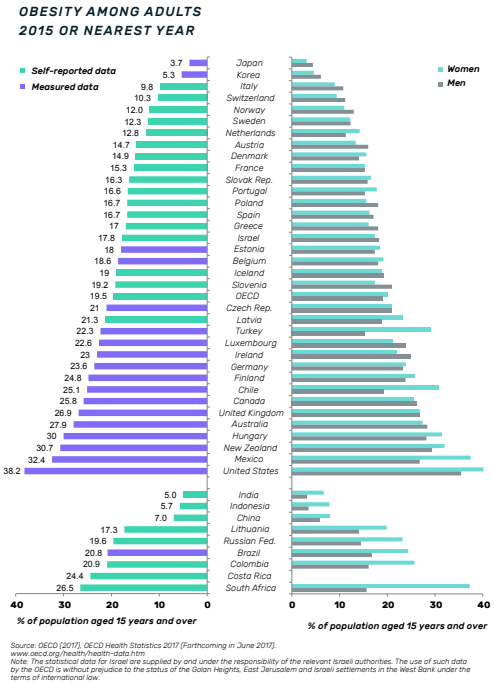
The term obese describes a person who is overweight, with a large amount of body fat. Obesity is generally caused by eating too much and moving too little. If a person consumes high amounts of energy, particularly fat and sugars, but does not burn off the energy through exercise and physical activity, much of the surplus energy will be stored by the body as fat.[1]

There are many ways in which a person's health in relation to their weight can be classified, but the most widely used method is body mass index (BMI). For most adults, a BMI of:

- 18.5 to 24.9 means the person has a healthy weight
- 25 to 29.9 means the person is overweight
- 30 to 39.9 means the person is obese
- 40 or above means the person is severely obese[2]

### *Obesity*

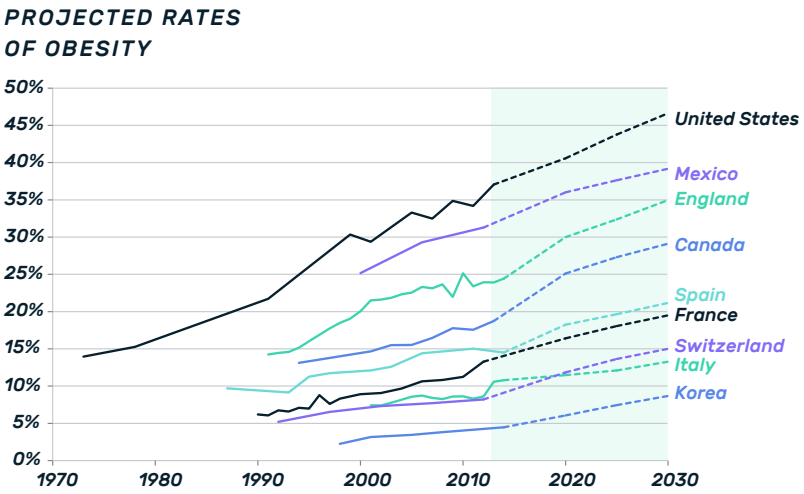
More than one in two adults and nearly one in six children are overweight or obese in OECD countries. In 2015, across the OECD, 19.5% of the adult population was obese.[3]




Source: OECD (2017), OECD Health Statistics 2017 (Forthcoming in June 2017).
www.oecd.org/health/health-data.htm
Note: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

1 National Health Service – UK - https://www.nhs.uk/conditions/obesity/causes/
2 National Health Service – UK - https://www.nhs.uk/conditions/obesity/
3 OECD – Obesity Update 2017 - https://www.oecd.org/els/health-systems/Obesity-Update-2017.pdf

Obesity rates are projected to increase further by 2030.[4]




*Note: Obesity defined as Body Mass Index (BMI) ≥30kg/m². OECD projections assume that BMI will continue to rise as a linear function of time. Source: OECD analysis of national health survey data.*

In the United States, where obesity is the most prevalent in the world, more than 70% of Americans are now either overweight or obese.[5]

2.7 billion adults globally are expected to suffer from obesity and will be overweight by 2025.[6]

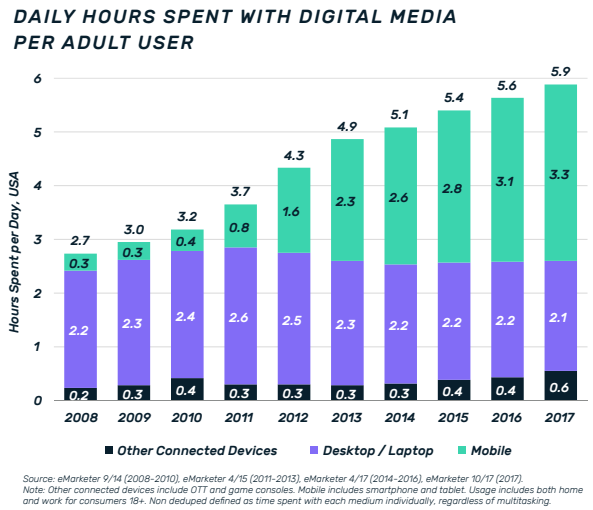
The modern world is becoming less physical and more sedentary, both at work and at play.

People's leisure time is also more sedentary with increased screen time. The following chart highlights the hours spent by adults with digital media.[7]



4 OEC – Obesity Update 2017 - https://www.oecd.org/els/health-systems/Obesity-Update-2017.pdf
5 Centre for Disease Control and Prevention - https://www.cdc.gov/nchs/fastats/obesity-overweight.htm
6 World Obesity Federation – 2018 - https://www.worldobesity.org/news/world-obesity-day-data-released/
7 Kleiner Perkins – Internet Trends Report 2018 - https://www.kleinerperkins.com/perspectives/internet-trends-report-2018

### Daily hours spent with digital media pre adult user




Source: eMarketer 9/14 (2008-2010), eMarketer 4/15 (2011-2013), eMarketer 4/17 (2014-2016), eMarketer 10/17 (2017).
Note: Other connected devices include OTT and game consoles. Mobile includes smartphone and tablet. Usage includes both home and work for consumers 18+. Non deduped defined as time spent with each medium individually, regardless of multitasking.

Current evidence suggests that screen media exposure leads to obesity in children and adolescents through increased eating while viewing; exposure to high-calorie, low-nutrient food and beverage marketing that influences children's preferences, purchase requests, consumption habits; and reduced sleep duration.[8]

## *Obesity and Disease*

The obesity epidemic is causing increases in chronic illnesses such as heart disease and stroke, high blood pressure, diabetes, some cancers, gallbladder diseases, osteoarthritis, gout, and breathing problems.[9]

The UK National Health Service reports that obesity is now second only to smoking as a cause of premature death in Europe.[10]

Obesity has also been linked to increases in stress and high levels of cortisol11 and decreases in motivation to exercise.[12]

These 3 factors are usually linked and create a spiral effect leading to unhealthy lifestyles which as well as affecting wellness is also affecting people's wellbeing.

## *Obesity and Healthcare Costs*

World Obesity show the global annual medical cost of treating obesity-related diseases is expected to reach US$1.2 trillion per year by 2025.[13]

Investing in the prevention, early intervention and treatment of obesity will significantly reduce the costs of treating the various non-communicable diseases (NCDs) linked to obesity, such as heart disease, diabetes, liver disease and various

8 Screen Media exposure and Obesity – US National Institute of Health - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5769928/
9 Web MD – Obesity and disease - https://www.webmd.com/diet/obesity/obesity-health-risks#1
10 National Health Service UK - https://www.nhs.uk/news/obesity/obesity-now-a-leading-cause-of-death-especially-in-men/
11 Stress and Obesity – US National Institute of Health - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5958156/
12 Motivation and long-term weight control – US National Institute of Health - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3312817/
13 World Obesity Federation - https://www.worldobesity.org/news/world-obesity-day-data-released/

forms of cancer. If left untreated, the costs of treating these diseases are expected to reach $555bn in the USA, $34.4bn in Brazil, $30.6bn in the UK and $50.2bn in Germany by 2025.[14]

### *Obesity and Public Policy*

There is a growing awareness of obesity as an issue which requires government intervention. The World Health Organisation ("WHO") notes that "obesity is one of today's most blatantly visible – yet most neglected – public health problems".[15]

The United Nations has identified childhood obesity as an issue that requires government intervention as part of its sustainable development goals.[16] The UN report highlights the number of overweight children under five is on track to jump from 42 million to 70 million over the next decade. It has called on governments to reverse the trend by promoting healthy foods and physical activity.

Government policies to tackle obesity typically include programs that can be divided into three categories: food-related, activity-related and obesity-related education. Food-related programs include school food policy, food marketing, food labelling and packaging, zoning regulation on fast food restaurants and taxes on sugary drinks and other unhealthy foods. Activity related programs include physical education and greater access to parks. Obesity-related education involves a general awareness of obesity, the risks of obesity and ways to mitigate it.

There is also a significant private sector response to obesity with the growth in the global fitness industry.

## *Global Fitness Industry*

A range of fitness-related businesses and fitness devices is helping to address the decline in physical activity and increases in obesity rates.

### *Health clubs, Sports Clubs, Gyms, Personal Trainers*

The size of the global health club industry has grown from US$67 billion in 2009 to US$87 billion in 2017.[17]

There are more than 200,000 clubs with 174 million members.[18]

There is a range of national and international associations of fitness businesses. These include the International Health, Racquet and Sportsclub Association (IHRSA), the Athletics and Fitness Association of America (AFAA), The American Council of Exercise (ACE), UK Active and Fitness Australia. These members organizations are advocates, including to government, for improving health outcomes and tackling diseases linked to obesity.

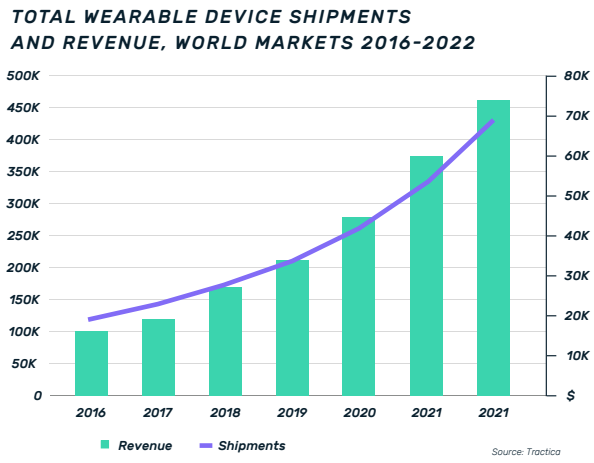
14 *World Obesity Federation - https://www.worldobesity.org/news/world-obesity-day-data-released/*
15 *World Health Organisation – http://www.who.int/nutrition/topics/obesity/en/*
16 *United Nations – Obesity - https://www.un.org/sustainabledevelopment/blog/2016/01/report-governments-must-act-to-reverse-rise-in-childhood-obesity/*
17 *Statista – Market size of global health club industry - https://www.statista.com/statistics/275035/global-market-size-of-the-health-club-industry/*
18 *IHRSA – Global Report - https://www.ihrsa.org/about/media-center/press-releases/ihrsa-2018-global-report-club-industry-revenue-totaled-87-2-billion-in-2017*

Recent trends in the fitness industry include functional training, High-Intensity Interval Training (HIIT), and holistic wellness.[19]

## *Smart Watches, Fitness Trackers and Wearable Devices*

Another significant recent trend is the usage of fitness tracking, smartwatches and other wearable devices.

Tractica, a research company, forecasts that annual wearable device shipments will increase from 118 million units in 2016 to 430 million units by 2022, representing a compound annual growth rate (CAGR) of 24.1%. The market intelligence firm forecasts that, by the end of that period, smartwatches will have become the largest wearable device category, followed closely by fitness trackers and body sensors. Other devices will also play a role in the growth of the market, including smart clothing, wearable cameras, smart glasses, smart headphones, and other wearables.[20]




The growth is led by increasing use of fitness tracking apps, rising demand for wireless and continuous health monitoring devices, thriving awareness about obesity, and increase in disposable income.[21]

As the most popular wearable device in 2017, sales of fitness/activity trackers are projected to increase to 105 million unit shipments and 3.33 billion U.S. dollars in revenue in 2022.[22]

According to Statista Consumer Surveys, 30 per cent of U.S. consumers owned a fitness band, and, 44 per cent of U.S. consumers used their sport and fitness gadgets daily.[23]

Fitbit has remained the market leader in the fitness tracker market, but its years of dominance have recently been challenged by Apple, thanks to the growing popularity

19 *Wellness Creative - https://www.wellnesscreatives.com/fitness-industry-statistics-growth/*
20 *Tractica – 2017 - https://www.tractica.com/newsroom/press-releases/wearable-device-shipments-to-reach-430-million-units-annually-by-2022/*
21 *P&S Market Research – 2018 - https://globenewswire.com/news-release/2018/03/28/1454453/0/en/Wearable-Fitness-Trackers-Market-to-Reach-48-2-Billion-by-2023-P-S-Market-Research.html*
22 *Statista – Fitness and Activity Tracker - https://www.statista.com/topics/4393/fitness-and-activity-tracker/*
23 *Statista – Fitness and Activity Tracker - https://www.statista.com/topics/4393/fitness-and-activity-tracker/*

of the Apple Watch.[24] The following is a chart of the number of Fitbit devices sold per quarter.[25]

The Apple Watch was released in April 2015 and quickly became the best-selling wearable device with 4.2 million sold in the second quarter of the 2015 fiscal year.26

Internet-connected wearables are still in their infancy. Glasses and clothes are other products which be used to collect personal fitness data.

# *Personal Fitness Data*

## *Fitness Data*

All these fitness devices count steps. Most also measure sleep, revealing fascinating details about the one-third of your life that you spend unconsciously. The fancier models can also tabulate other metrics, including heart rate, blood oxygen level, skin temperature, perspiration, body weight and body mass.

Most fitness devices upload the fitness data to the cloud. The amount of this data is growing rapidly both due to the increased number of devices in use and the amount of time each device has been used. Scientific American calculates that terabytes of personal health data are amassed daily in stunning quantities.[27]

Part of the appeal of fitness devices is that it allows untrained people to gauge what only doctors used to measure. People gain knowledge about the workings of their own bodies, by monitoring measurements continuously, not once a year at a physical.

## *Fitness Devices and Motivation*

Another factor is social interaction, or the “quantified-self” movement. It’s a Web site; it’s a conference, it’s communities of people, some of whom are raising self-monitoring to the level of obsession. Millions of people making a greater effort to get healthy and fit.

Fitness devices are not scientifically accurate. Different brands often have different daily step counts, and sleep scientists measure brain waves, not wrist movement to indicate what stage of sleep you’re in. But, through the customer’s eyes, it doesn’t matter.

***Fitness devices are succeeding not because of their scientific qualities but because of their motivational ones. What the fitness devices do is to keep movement and sleep issues front-of-mind. Every time a person turns on their phone, the latest stats on their progress appears. Many also show the results of friends who wear the same brand.***

## *Personal Fitness Data and Companies*

24 Statista – Fitness and Activity Tracker - https://www.statista.com/topics/4393/fitness-and-activity-tracker/
25 Fitbit Sales – Motley Fool - https://www.fool.com/investing/2017/11/06/1-good-sign-for-fitbits-ionic.aspx
26 Apple Watch – Wikipedia - https://en.wikipedia.org/wiki/Apple_Watch
27 Scientific American - https://www.scientificamerican.com/article/fitness-trackers-are-everywhere-but-do-they-work/

**Scientific American observes**[28]

*Researchers would love to get their hands on that information. So would advertisers. Insurance companies would have a field day; they could offer active members lower rates than sedentary sloths. (Our rates are already higher if we're smokers or drivers with bad records.)*

*Who owns the data? Will the makers of the fitness bands sell personal information? Will it be anonymous and aggregated or associated with us by name? What if we want to contribute our data—to a doctor? To a research study?*

*It's the Wild West at the moment. We're collecting mountains of personal health data and just shoving them into underground caverns. The real promise of the quantified-self movement may not be fulfilled until we determine how to find the gold in those data—and who gets to do the looking.*

Some consumers, however, are less willing to share their data, especially with the government as highlighted in a survey by Accenture[29]

28 *Scientific American - https://www.scientificamerican.com/article/fitness-trackers-are-everywhere-but-do-they-work/*
29 *Accenture Consumer Survey – 2018 - https://www.accenture.com/t20180306T103559Z__w__/us-en/_acnmedia/PDF-71/accenture-health-2018-consumer-survey-digital-health.pdf*

# Mobile Health and Data Privacy

## Mobile Health

The global digital health market is expected to reach US$206 billion by 2020, driven particularly by the mobile and wireless health market.[30]

Mobile health ("mHealth") is the practice of medicine and public health supported by mobile devices.

Today nearly half (48%) of healthcare consumers are using mHealth apps, compared to just 16% in 2014 (Accenture) with the number one reason for people purchasing a wearable device being health.[31]

Using mobile devices to keep track of one's wellbeing, and in just three years, since 2014, usage within the health & fitness app category grew by over 330%.[32]

Like many other industries, the healthcare industry has responded to users wanting to manage more of their daily affairs on their mobile devices.

## Accenture reports[33]

*Mobile health app usage has grown rapidly over the past three years, and more than half of health consumers (54 per cent) would like to use their smartphones more to interact with healthcare providers. However, the response from health care providers has been woefully inadequate. Consumers complain of poor user experience with providers' proprietary apps and mobile functionality that often fails to meet their individual needs.*

*The problem is exacerbated by a marketing sea change called "liquid expectations," when consumer experiences seep over from one industry into another, creating an expectations chasm. Disruptor healthcare apps are increasingly meeting consumers unmet needs and closing that chasm.*

## Data Security and privacy

High profile data breaches have become a more prevalent issue in recent years. Examples of large companies which have been breached and user data stolen include Yahoo, Macy's, Reddit, Timehop, Dixons Carphone and MyFitnessPal.

Attention has also focussed on the way large corporations like Google and Facebook collect, store and use it people's personal data. Signing up to an online service has become easier especially using Google or Facebook, but as part of this process, users are signing away the rights of use of their personal data. Google and Facebook have built substantial advertising businesses, significantly based on this data.

30 Statista - https://www.statista.com/statistics/387867/value-of-worldwide-digital-health-market-forecast-by-segment/
31 Accenture - https://newsroom.accenture.com/news/accenture-study-finds-growing-demand-for-digital-health-services-revolutionizing-delivery-models-patients-doctors-machines.htm
32 Yahoo Finance - https://finance.yahoo.com/news/health-fitness-app-users-going-073926087.html?guccounter=1
33 Accenture – Losing Patience - https://www.accenture.com/t20171212T060554Z__w__/us-en/_acnmedia/PDF-24/Accenture-Losing-Patience.pdf

### *Wearables Privacy*

It is still early in the fitness data revolution. The rules on personal fitness data use are still being established, and consumer knowledge of the way fitness data is being used is still immature.

In a recent study, the FCC studied 12 different health and fitness apps and found they sent data to 76 different third parties. This data included names, email addresses, exercise habits, diets, medical symptom searches, location, gender, and more.[34]

Some companies, including Nike and Fitbit, do not currently sell the data they collect to third parties.  But they still collect it for their own use and may change their policy in the future.

34 *Lifehacker - https://lifehacker.com/lots-of-health-apps-are-selling-your-data-heres-why-1574001899*

# Challenges & Opportunities

The rapid adoption of mobile health technology combined with a significant increase in personal health data created by wearable devices presents an opportunity to tackle the obesity epidemic, especially for the younger, smartphone-centric generation.

At the same time, the world is becoming increasingly aware of the privacy and security challenges of collecting, managing and using personal data.

The following discusses in further detail some of the challenges and opportunities.

## *Challenges*

### Impact of Obesity on Society

It is clear to most people that there is an obesity epidemic – every year we see more overweight and obese people. And the healthcare impacts of obesity are also clear to most people - overweight and obese people have more health issues. But the real challenge is what can society do about it?

On the one hand, people should be free to lead their own lives as they see fit. Is it the role of society to tell people they cannot be overweight? And is it ethical or moral to tax overweight people, especially if they cannot afford to pay? These are not easy issues to address and are the first challenge of tackling the obesity problem.

On the other hand, should the rest of society need to pay for someone's obesity-related problems? Obesity can be controlled through diet and exercise, so when an obese person starts to get obesity-related health problems, why should society pay for the care? And what if an obese person cannot afford to pay? Should health care be withheld? Again, these are not easy to address and is the second challenge in tackling obesity.

Finally, the failure for society to act to tackle obesity means substantial economic cost and future pressure on healthcare systems. So, there is a public policy challenge to address obesity. Related to the public policy challenge, is that any solutions will inevitably involve spending more money today to save money in the future. This is a political and financial challenge.

### Exercise Motivation

***As a society, it is important for us to strive for a healthier more productive society that addresses the obesity epidemic and reduces the pressure on healthcare systems. Encouraging exercise and a healthier diet is the way to achieve this.***

#### *Exercise Motivation at Scale*

However, motivating people to exercise at scale is challenging.

There are many different reasons why an individual would be motivated to do something. Sometimes they may be motivated to act because of internal desires

and wishes (to get fit), but at other times, the behaviour is driven by a desire for external validation or reward.

There are many aspirational athletes who have been collecting data on a range of devices or wearables for a few years. These people have had the motivation to track their fitness and take an interest in their own healthy behaviour, but even some of these can slip into periods of inactivity, losing fitness in a matter of weeks.

Individuals who are overweight or obese, are harder to motivate to exercise, as they come from a sedentary place, where exercise was almost non-existent.

It is challenging to find solutions that can work with individuals that are anywhere on the scale of no exercise to the athlete.

There is a role for government, health and fitness providers and corporations to address exercise motivation, but each of these segments has their challenges.

***Exercise motivation and the Health and fitness industry***

The role of the health and fitness industry in encouraging exercise motivation is problematic. There are high costs to incentivise fitness effort at an individual level. It is also not feasible to offer large demographics with regular personal fitness and health data insights.

***Exercise motivation and Government***

Most Government health care systems do not operate on a preventative basis. The systems respond to the health problems when they emerge. Obesity, however, is a clear indicator of future health problems and should be addressed in the preventative stages. This is a major political challenge for governments as it requires additional funding now, even though the costs to society will be substantially higher if obesity is not addressed until the disease has emerged.

Offering individualised fitness plans to the whole population is prohibitively expensive, and there is no simple solution to offering means-tested fitness effort incentives at a population level.

Overall skewed healthcare funding, the high-cost nature of fitness institutions and the challenge of motivating people who are already obese makes government-led initiatives very challengings.

***Exercise Motivation and Corporations***

For large corporates to implement systems to incentivise fitness effort on an individual basis, the time and costs are also prohibitive. Privacy and discrimination issues can also prevent corporations from legally targeting employees who are already overweight or obese. Despite the benefits of a healthier workforce, corporate programs tend to favour individuals who already have some fitness motivation, and not effectively tackle the wider problem.

**Present bias**

Present bias is the tendency to over-value immediate rewards at the expense of our long-term intentions, which has detrimental implications later on. Gym membership typically spikes after Christmas in Europe, but after the good intention of getting fit, many people cancel after 3 months as the effort required for the long-term goal becomes apparent with gratification not being met quick enough.

### Collection of Fitness Data

Data is intrinsically more valuable as the sum of all its parts rather than from one source, but fitness data often comes from multiple sources and in different shapes and forms. Different devices have different input mechanisms and storage formats which makes it hard to integrate data from different devices. There is a challenge in establishing fitness data standards which can allow for data from different devices to be integrated into a single location. There is also the challenge of having easy to use tools to facilitate the data collection and integration.

### Management of Fitness Data

***Once the personal fitness data has been collected, there is the challenge of managing the data, including security, privacy and trust***

#### *Security*

While personal fitness data may not be as sensitive as some more regulated personal health data, it is still fundamentally private information that people may not want to be shared with anyone else. In this regard, maintaining a high level of security around personal fitness data should be the default position. Data breaches of personal fitness data could compromise a person's employment or insurance, which further emphasises the importance. This is a challenge because many fitness devices do not have a high level of data security as default.

The vast amount of personal fitness data makes it a valuable asset. There is motivation for bad actors to try to access or compromise this valuable data, further complicating the security challenge.

#### *Privacy*

While the security of private information is important, many people may want to share some or all of their personal fitness data with others (e.g. their doctor, family or friends). They may wish to share this continuously or only for a brief period of time. The establishment of effective privacy controls on data presents a significant challenge to cover all the possible scenarios in an easy to understand and use way.

#### *Trust*

mHealth and fitness device companies have access to the data generated - many offer the ability to store it in the cloud. Apart from security and privacy issues, there is a general issue of trust in companies. Will the company manage the data with the appropriate level of security and privacy control? Companies may consider the use or sale of the data to third parties for commercial gain, especially if the economics of their business depends on attributing some value to the user data, even if this potentially compromises the privacy of the users. Furthermore, corporate policies regarding the management of data can change over time, potentially loosening privacy controls.

Government access to fitness data is also problematic. As highlighted in the survey above, a significant percentage of the population do not want to provide the government with access to their health data.

Trust in corporate and government ownership of personal fitness data is a significant and structural challenge to overcome.

***Usability***

Management of personal fitness data should be the responsibility of the individual, not companies and government. But that also creates challenges. Users are not necessarily sophisticated enough to properly manage security and privacy. How do you access data if you forget the password? Furthermore, managing privacy controls to decide exactly who, what, when and how personal fitness data can be accessed is difficult to achieve in a user-friendly way.

## Use of Personal Fitness Data

Personal fitness data can be valuable, especially when combined with other information such as location, spending and web surfing habits ("big data"). Companies with commercial motives including advertisers and insurers want access to personal fitness data to refine both the type and price of their offering better.

***Personal Fitness data and advertising***

Facebook has demonstrated the trade-off individuals make in 'free' digital services for their digital data which is effectively sold to advertisers. It is a challenge to manage the appropriate use of personal digital data for advertising purposes.

It is also a challenge to effectively compensate a user for allowing an advertiser, or another third party, the right to digital data. Is free or cheap access to a service enough, or should there be additional compensation?

***Personal fitness data and insurance***

A key challenge is how insurance companies might use fitness data to identify risky people. They are very financially motivated to profile potential customers into high and low-risk categories, and fitness data could provide a very effective method to achieve this.

With obesity a clear indicator of potential future health problems, insurance companies would like to bias their premiums based on obesity. If the company cannot determine obesity directly, it may be possible to identify the condition via fitness devices.

Furthermore, it may be possible to determine that a person is likely to be a smoker by their movement habits at certain times of the day, all tracked via their fitness tracker. This example illustrates how, over time, it is going to a challenge to draw that line of what's health data and what isn't.

***Data is fragmented and hard to share***

Whilst explosive growth of mobile health and fitness apps/wearables has meant the amount of data collected has grown exponentially it has also created a problem for users. Personal data is fragmented across multiple platforms with no place to assimilate and so these effectively walled gardens.

Fragmented data providers mean sharing is hard and inefficient and needs an API sharing economy to help bring data together.

## *Opportunities*

### Blockchain for personal fitness data storage

Using the blockchain offers the opportunity to collect personal fitness data securely and giving complete control of the data to the individual. The blockchain directly addresses many of the data related challenges highlighted above.

The blockchain can provide secure, tamper-proof data collection and enable sharing with third parties like doctors, wellness professionals, research groups on as needs basis. And, if the user decides, they can sell their data to advertisers or insurance companies and receive compensation.

### Tokens as a universal fitness currency

Along with the blockchain, the creation of a universal fitness currency offers the opportunity to create a fitness economy, where everyone benefits from economies of scale and choice. Microtransactions for fitness data transaction can be enabled, digital loyalty programs, competitions and rewards can all be transacted in the token.

Collective rewards that groups of people work towards can be enabled via tokens, catering for a wide range of people's needs and offer the opportunity for a more inclusive approach to fitness and tackling obesity.

Gamification can also be enabled via tokens. It provides a layer of stickiness to the platform by engaging some users to participate more to receive visible status on the platform that can be seen by their friends and peers.

***Importantly, tokens can be used to reward your and society's collective fitness effort.***

### Using technology to combat Obesity

In the same way that improvements in mobile and internet technology have helped solve problems in other industries, there is the opportunity for technology solutions to help combat obesity. mHealth and personal fitness data can help raise awareness of obesity-related issues in the preventative phase.

### Health and Fitness Industry

mHealth and fitness data can also be used by the health and fitness industry to tailor better their products offering to individuals, lessen the marketing costs associated with acquiring customers and reducing the churn rates by offering better services.

### Corporate Wellness

Whilst many corporations aspire to create an environment where employees are healthier and happier, execution of corporate wellness programs is often poor. Many programs lack inclusiveness (e.g. a charity run or yoga campaigns) and reward relatively few employees.

Health and personal fitness data offer the opportunity to redesign more effective and inclusive corporate wellness programs.

### Aggregation of data - API economy

APIs (Application Programmer Interfaces) are the components that enable diverse platforms, apps, and systems to connect and share data with each other.

Connecting different applications via APIs to create increasingly more powerful and flexible solutions is becoming more common and widespread. This is the API economy. There is an opportunity to connect well structured personal fitness data to the API economy to create a range of innovative and powerful personal fitness related applications.

***Digital Loyalty Programs***

Digital loyalty programs replace punch and stamp cards with a digital solution which includes some hardware that is present at the location, which communicates with a users phone or digital ID to verify a visit took place.

The hardware used for a digital loyalty program includes a customer facing tablet that scans a unique QR code from a physical card or an app. An RFID tag that can be read by the NFC capability of a smartphone app, or a QR code that can be scanned by a smartphone app. A smartphone app is a preferred choice as it gives the user more options to participate and manage their program from the palm of their hand.

As scaling a hardware solution is costly and brings a maintenance cost, an alternative is to bring your own device (BYOD), where businesses that already have a device (tablet/phone) can download a business kiosk app which acts as the conduit for verifying transactions.

The key reason to use a digital loyalty program is to reduce fraud and increase data veracity. Using a variety of end to end solutions to verify that a user was at a business at a certain time enables overall network scalability.

An opportunity exists to provide a platform where all parties can leverage scalable digital technology and have a choice of which solution fits their business.

***Loyalty Programs have reached critical mass***

Loyalty, membership or rewards programs are widely offered, and over recent years, membership of rewards programs by consumers increased 85% in 2015. According to the latest new research from Mastercard, 90% of consumers in Australia aged 16+ were members of at least one loyalty program, with the Australian consumer being a member of 6.1 loyalty programs on average. Australian Millennials had the highest number of loyalty programs joined at 7.9 on average, showing loyalty is engaging for a younger audience.

The vast majority of merchant rewards programs in Australia are non-digital and a single merchant based, generally using physical punch or stamp cards to record consumer purchases. There is a trend towards digital, multi-merchant rewards programs driven by the advantages offered for both consumers and merchants.

The PUML platform will be built as a multi-merchant rewards program, accessible to any provider, enabling businesses a turnkey solution to their loyalty programs.

***Digital Vouchers & Coupon Codes have replaced paper systems***

Vouchers and all their variations are widely used in the health & fitness industry to attract customers to buy products and services. In a smartphone-centric world, increasingly these vouchers are being issued and redeemed through smart-devices. Many businesses are honouring these vouchers but have no documented record of the voucher unless they capture the details in their point of sale system. With an app, the voucher redemption process can occur entirely digitally by simply establishing a

connection between the user's smartphone and an identifier.

Coupon codes are typically generated and used by an e-commerce platform. Many now have the capability to issue unique one-time codes which stops fraud or dissemination on 3rd party coupon sites.

Digital vouchers and coupon codes have all the information relating to them embedded, including the exact product/service, price/discount and the terms and conditions. It is the same mechanics for a coupon, a pre-paid voucher as well as collecting loyalty points and redeeming loyalty rewards.

# Products & Services

The Company aims to build an inclusive global platform that rewards fitness for health. The PUML platform offers a solution to all the problems highlighted previously. Simply put, using a member-owned secure health & fitness record, PUML will help reward fitness activity and healthy lifestyle choices. In doing so this will give control back to the member, who can then choose how their data can be used and commercialised.

## *PUML Digital Health & Fitness Record*

The PUML vision is to become the global open standard for fitness & health records. Its core purpose is to provide a secure and trusted record that aggregates data from many sources and verifies it for integrity. This puts members back in the driving seat allowing them full control of who they want to share their data with. This data record provides the engine for the rest of the ecosystem to develop.

For mass adoption, a level playing field is needed, where everyone can participate and not be demotivated by a system that rewards performance over participation.

The system will be governed by rules that agree on how to normalise the data into specific units. This will allow sedentary members to compete in the same challenges as aspirational athletes, with lesser amounts of exercise relative to their counterparts.

## *The PUML Health and Fitness Economy*

The economy is based around the data record, which allows all the components to operate. The platform has multiple stakeholders, where a currency for value exchange is needed. Creating a PUML token will help facilitate value within the network to different stakeholders. The PUML token will have a fiat conversion and will be the internal currency used for all incentivisation. Members can be incentivised to participate in fitness challenges and share their data. On accumulation of tokens, members can then redeem rewards from the PUML marketplace.

## *Challenges*

Challenges are part of the incentive mechanism to motivate members to participate in fitness activities. Essentially sponsors (businesses and organisations) will offer challenges for tokens. On successful completion members will receive the agreed amount of tokens and be able to spend those balances in the marketplace.

Sponsors will purchase tokens and enter into a contract setting all the terms and conditions that need to be met before tokens are released to the member.

Sponsors will including brands, events, corporates and health industry associations, all of which have an interest in members health and fitness and are willing to pay to incentivise fitness activity. Both parties are aligned on fitness goals for positive change.

Members will be asked for a token entry fee to most challenges. On successful completion of challenges, members will be credited with tokens and will accumulate them over time. These token balances can then be spent in the marketplace. If unsuccessful, tokens will be allocated to the PUML Better Health Academy.

***Challenge examples***

*SPONSOR - Gym or Personal Trainer*
*GOAL - To incentivise attendance and reduce attrition rates*
*CHALLENGE - Attend a venue or class once a week for 8 weeks*
*REWARD - 200 PUML tokens*
*TYPE - Invite only*

*SPONSOR - Sports apparel brand*
*GOAL - To create brand awareness to a targeted audience*
*CHALLENGE - Complete 3 exercise sessions per week for 5 months*
*REWARD - 150 PUML tokens*
*TYPE - Open to 5,000 participants*

*SPONSOR - Employer*
*GOAL - To incentivise fitness participation across its 1000 strong workforce*
*CHALLENGE - Complete 2 exercise sessions per week for 12 weeks*
*REWARD - 500 PUML tokens*
*TYPE - Invite only*

*SPONSOR - Sport event*
*GOAL - To incentivise participation in a specific event*
*CHALLENGE - Complete 10k run receive*
*REWARD - 200 PUML tokens*
*TYPE - Event participants only*

## Offers

Big data sets have become a commodity that many organisations would like to get their hands on and from a members point of view are an increasingly valuable asset.

The following sponsors have an interest in making offers to members to participate in dataset sharing:

***Researchers***

Health and Fitness studies need data to be able to test a hypothesis and draw meaningful conclusions. The more comprehensive the better as the spread of data leads to better outcomes.

***Insurance***

Insurance companies manage risk and so want to know data about individuals looking for health insurance. If trusted data about a members activity can be obtained and is positive it could lead to reduced risk for the company and cheaper premiums for the member.

***Product Developers***

Like researchers, some product developers in the health and fitness space may want data to help them bring a product to market.

These sponsors will create a contract that sets out the terms and conditions for the purchase of the data. This will include what data is required and in exchange what the token reward is. This will then be offered to members who fit the criteria, who can choose to participate and share the data or not.

### Marketplace

All too often we see reward marketplaces offer a limited choice of products and services, which have been determined by selected existing commercial partnerships. If members can't see rewards that motivate them, their reasons for participation become limited and engagement drops.

The marketplace is fundamental to member engagement, as it serves as the point of exchange from tokens into real-world products and services. It will be core to the ecosystem with all actors able to interact in one place. It will also be populated by Service Providers, who will add their products and services to it for sale in return for tokens. This may include **digital video classes**, **nutrition plans**, **event entries**, **activewear, supplements, veggie boxes** and even **donations to charity**.

Service Providers will be able to use PUML tokens, previously received for products and services, to run their own challenges, keeping a strong circular economy. However, if they wish, tokens can be exchanged for fiat.

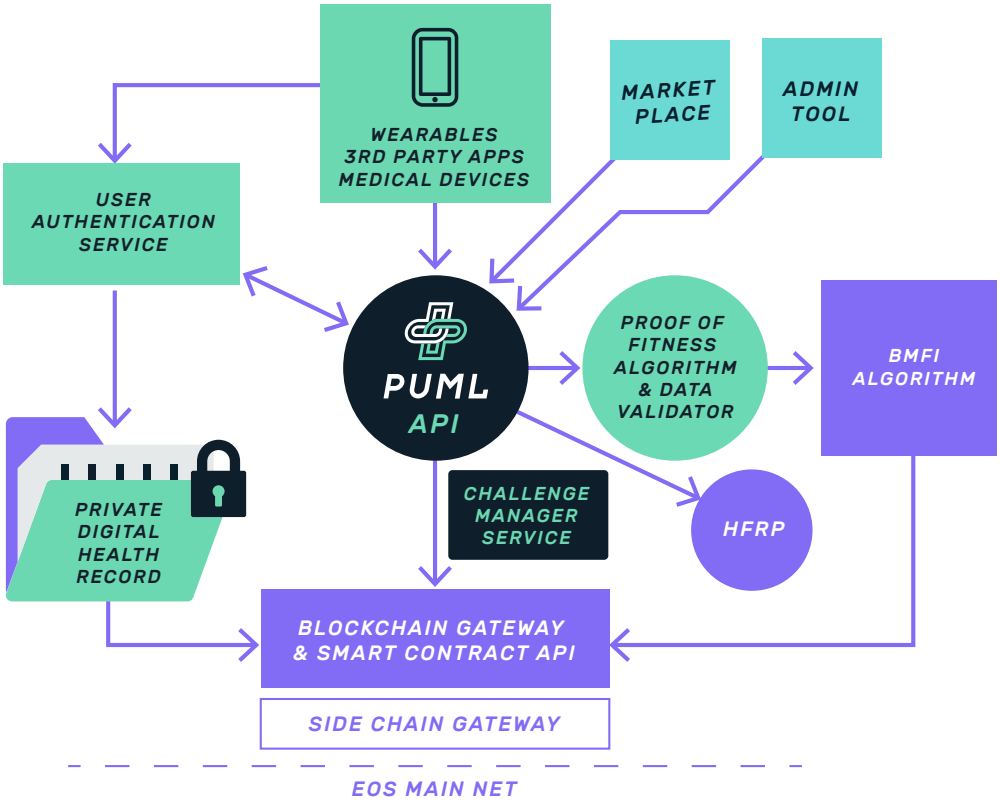
### Gamification - Tier Status Levels

On a social level, it has been shown through countless business models that gamifying business models lead to stickiness and engagement. At a commercial level incentivising frequency can lead to a disenfranchised set of users, who are unable to participate as much. However, to empower those that are frequent fitness people we will provide a social status tiered system, that rewards you for participating more often with both adding data and challenge participation.

## *Technology Platform*

With the expansion of blockchain technologies and improvements gained in integrating off chain solutions it's become possible for a platform like PUML to finally be feasible.  Our goal is to build on the foundation of existing protocols and blockchain design patterns to deliver a mass-market health and fitness platform that is both global and mobile.

Our existing technology stack is centralised and this project aims to develop a fully autonomous decentralised blockchain solution that could operate independently of the parent company.




### PUML Digital Health Record

At the heart of the platform is the Digital Health and Fitness record we base on **Personal Units and Movement Levels** or the PUML Digital Health Record.

We empower all our members to own and control their data and choose who and how 3rd parties access it. Blockchain technology is key in implementing this secure and trusted record. The PUML platform will apply two blockchains to enable permission and privacy. The user profile will be on EOS, while the private data will be on a Private Side Chain. This allows the user to grant granular access to its data by applying permission to 3rd parties. The private blockchain will integrate with a decentralised Interplanetary File System (IPFS). This file structure is a Merkle DAG, which combines Merkle trees (used in blockchains to ensure immutability), and Directed Acyclic Graphs (used in Git version control, which also allows users to see the versions of content on IPFS). This is an excellent solution for storing unregulated health data, particularly when there is consistent duplicity in information such as **heart rate data, blood pressure, weight, height and other data**. All data will be normalized using a Proof of Fitness validator algorithm, and then saved in a key-value store that can be cryptographically hashed and distributed onto IPFS. This approach will ensure anonymity, while retain the accessibility of the user's data.

We will hash all Personal Fitness data using the **SHA256 (Secure Hash Algorithm)**. Data will be normalised once the PoF algorithm has confirmed legitimacy and stored as a **PU** (Personal Unit). The SHA-256 algorithm generates an almost-unique, fixed size 256-bit (32-byte) hash which works very well on IPFS although larger sizes

could be used for larger data. This ensures data is encrypted and digitally signed and we will have the additional benefit of being able to shard data across nodes as the IPFS protocol hardens into a production distributed file storage system.

### Health and Fitness Rewards Protocol

The Health and Fitness Rewards Protocol (HFRP) is a bespoke system that will be built for PUML and 3rd party organisations looking to integrate with our platform. We are very excited to be working with Phil Gunter, a loyalty rewards advisor who shaped the Virgin Velocity Rewards programme for over 7 years, transforming it from a basic and costly marketing program into a sophisticated, effective and highly profitable business valued at $960m. We will be shaping our protocol with this key commercial insight and building it on a new digital currency based on blockchain technology.

Some of the benefits of building the HFRP on blockchain are;

- We will have a fixed supply of tokens, unlike traditional rewards programmes where points can be added, changed and re-issued at any time.
- Transparency, the movement of token rewards and ownership will be publicly available and thus not open to manipulation.
- Tiny transaction fees, as the HFRP will use the PUML tokens as a digital currency in exchange for goods and services there will be a small fractional percentage, thus saving service providers and bring the prices down for PUML members
- Digitally governed through the use of smart contracts that will bring transparency and trust to both service providers and members.

Integrating our experience in loyalty programmes and business logic with a trustless and transparent blockchain ledger technology will ensure the HFRP is a world-class service. Once we have developed our production version of the HFRP we will be able to open the protocol up to 3rd party businesses and in the future look at commercialising this protocol to other 3rd parties and organisations.

#### How it works

In addition to basic rewards protocols, the HFRP will have an in-built tier and gamification element.

The PUML implementation of this will be as follows but there will be a separation of core logic with programme specific logic enabling the protocol to be used in the future by other businesses.

***Status Tiers and levels***

| | *Completed challenges* | *CheckIns* | *Data Units* |
|---|---|---|---|
| *Starter* | *<1* | *<10* | *<50* |
| *Mover* | *>1 <5* | *>10 <20* | *>50 <100* |
| *Fitstar* | *>5 <10* | *>20 <50* | *>100 < 500* |
| *PUMLr* | *>10 <50* | *>50 <100* | *> 500 <1000* |
| *PUMLrGold* | *<50 <100* | *>100 <1000* | *>1000 <10,000* |
| *PUMLrPlatinum* | *100+* | *1000+* | *10,000K* |

### Health and Fitness Marketplace

The health and fitness marketplace will be a hub for our members to browse products and services.

The marketplace will use our existing core backend platform for registering and setting up products and services via a PUML MarketPlace Account (PMA).

This will have a admin portal where brands and service providers can set up their accounts, EOS compatible wallet and manage all their products and services. This includes setting prices in tokens and seeing transaction history as well as analytics and customers.

The Marketplace will be accessible to all current PUML members via the mobile applications or the website. Here they will be able to see offers, discounts, products and services from their local gym and on the global fitness marketplace.

### The PUML Wallet and Mobile Apps

One of our key advantages is our founder and CTO Damien King, along with the experienced development team, is their ability to execute and build global platforms. Damien has been involved in multiple global mobile applications including Virgin's first iPad app in the UK and delivered a number one ranked app in Australia. Damien and his team have won 3 mobile app awards including best startup for an innovative interactive radio app, launched at South by Southwest (SXSW), Texas, Austin in 2013. It's with this great experience in product development and user experience that will ensure our version 2.0 mobile apps will have both the innovative technology and the user experience to marry the complexities of blockchain with the ease of use for mass-market consumers. It will be imperative that the PUML apps can demystify blockchain and cryptocurrency in simple and easy to use interfaces that just work. From our dedicated business Kiosk consoles to our medical grade Bluetooth compatible health devices, the products will be seamless and delightful to browse and interact. They will be built on the latest technology only ever using native language such as Swift 4.0 and Java. This will allow us to access underlying core libraries of the devices and deliver exceptional user interactions using material design.

***The key features of the apps will include:***

- User registration and authentication
- Onboarding Digital health record setup and Academy registration
- PUML Token Wallet, transaction history and unique address details
- PUML Proof of Fitness BMFI Score (proprietary)
- PUML Health and Fitness Marketplace

### Proof of Fitness Validator Algorithm and Data Engine

Fitness activity data will come in many forms and so normalisation is important, helping verify whether a members activity can be counted towards a challenge set by a sponsor.

The Proof of Fitness Algorithm and data engine serves 3 purposes.

- To validate all data that is submitted to the PUML Digital Health record
- To normalise data into Personal Units (PU)
- To encrypt data into a SHA256 hash that can be stored on the Private Side Chain
- To update the PUML API and Smart Contract API to release Token Payment for Micro Reward and/or related Challenge.
- To begin with this validator will be based on a formula with complex business rules structure to validate and normalise data. In the future we expect Machine Learning technology to improve this process and provide a more efficient and accurate way of analysing results.

### BMFI - A New Methodology for Analysing Health

One of the most common objections to the standard Body Mass Indicator is that it is a very high-level indicator that often does not allow for global body types and compositions. It also is very difficult to see fractional changes in health due to the limited calculations or the formula. At PUML we would like to reinvent the method of finding and analysing a person's risk of Obesity and subsequent diseases. We are thus developing a Machine Learning algorithm that adds a number of data points taken from each PUML member's Digital Health Record. This extra data will add weight to the overall score and also allow for small fractional changes and help improve early diagnosis of health degradation.

*Current BMI formula*

*{ BMI = weight (kg) / height 2 }*

- According to most criteria accepted around the world:
- A BMI of 18.49 or below means a person is underweight
- A BMI of 18.5 to 24.99 means they are of normal weight
- A BMI of 25 to 29.99 means they are overweight

- A BMI of 30 or more means they are obese

As mentioned previously this is just an indicator and has many issues when trying to attain actionable information. On the other hand the BMFI will follow a much more complex formula and will be personalised for each user based on their Personal Units and Movement Levels. This formula will leverage the existing BMI as a foundation and overlay multiple data points such as how often a member is logging health and fitness data units and what their movement levels are in relation to the average person in each category. How their heart rate responds to exercise and how long it recovers. Over time we will build this formula to be more accurate as the individual PUML member adds more data.

### Smart Contract and Blockchain Gateway

The Smart Contract and Blockchain gateway is the core service for connecting our various components and services and delivering a secure and trusted connection to the public EOS blockchain and public smart contracts.

These are just some of the smart contracts that will be developed;

- PUML transactional Escrow and purchasing contract
- PUML Digital Health Record contract
- Event Challenge contract
- Staking Challenge contract
- Checkin Service Provider contract
- Corporate Wellness and employee challenge contract

### Authentication and Registration Service (ARS)

The purpose of this service is to maintain privacy and control access to each PUML Members Digital Health Record by adjusting the settings for:

- Individuals – letting people you trust, such as family members, friends or carers, view and help manage your health information.
- Healthcare providers – apply restrictions to the information that healthcare provider organisations can see.
- 3rd parties – restrict access to anonymous data in your health record when choosing to opt in to monitise your data.

ARS will be a internal microservice that will have the ability to authenticate internal and external actors and securely control access to the private digital health record via the use of the public EOS blockchain. This will make it highly flexible, trusted and tamperproof. It will incorporate multi factor authentication (MFA) and ensure the true owner of the data always controls the flow of data in and out.

If PUML members choose to share their anonymous data with 3rd parties such as charities, medical trials, or for revenue via insurance and external corporations, this service will manage and control access to the data by using our unique side chain solution.

### Platform Components

The experienced in-house development team will expand the existing IT infrastructure to include the following platform components. The team has engineered a microservices approach to the overall PUML platform to enable the business to prioritise individual components based on the community feedback and roadmap requests. This architecture allows us to create a highly resilient platform that can be orchestrated across multiple regions and geography. This will allow us to deliver a microservices platform that can be developed simultaneously and thus save time and money on engineering.

| *Component/Service* | *Description* |
|---|---|
| ***PUML Core Service API*** | *The PUML API already allows seamless integration with 3rd parties allowing secure authentication and read/write functions within its restful endpoints. This API will be extended to integrate into multiple health, fitness and wearable data applications.*<br><br>*Opening up so that Platform providers can provide health, fitness and wearable data* |
| ***Authentication and Registration Service*** | *We will develop our existing RESTFul off-chain authentication and registration service to integrate directly with the blockchain to provide a secure interface for storing and logging health and fitness data.*<br><br>*This service is primarily used in authenticating PUML members and providing extra layers of access control for 3rd parties.* |
| ***PUML Proof of Fitness algorithm and Data Validator*** | *Our unique Proof of Fitness Algorithm is a proprietary service that verifies and validates data for each member and dividing data into Personal Units (PU). These personal units are then cryptographically hashed and stored on IPFS and connect to the smart contract manager to update the EOS blockchain. The PUML side chain is also updated and relevant smart contract participants and tokens are released.* |
| ***PUML BMFI algorithm*** | *The PUML Body Mass Fitness Indicator or BMFI takes the somewhat basic indicator as a foundation and uses the Digital Health Record with both Personal Units and Movement Levels to provide a more accurate indicator of obesity and current fitness level.*<br><br>*The algorithm is able to provide a more accurate analysis of a PUML members current fitness status and fractional improvements or degredations based on all the validated Proof of Fitness algorithm Data validator.*<br><br>*Our aim is to provide more minor fractional changes to help with early detection of risks and issues and also as a visual motivation factor.* |
| ***Challenge Manager Service*** | *The main service for event coordinators and corporate wellness programmes to create challenges* |
| ***Marketplace Service*** | *As described earlier this is the marketplace service that will be available to PUML members for redeeming discounts, rewards and spending PUML tokens on products and services.* |

| | |
|---|---|
| ***PUML Side Chain Ledger and DataStore*** | *The PUML Side Chain ledger is our own private chain that will integrate with both the EOS public chain, the PUML API and Oracle.* |
| ***Blockchain Gateway and SmartContract Manager*** | *This is the core gateway and connection to securely connect the side chain, mobile apps and PUML platform with the public EOS blockchain and smart contracts.* |
| ***Corporate Wellness Analytics Platform*** | *The Corporate wellness analytics platform will be designed around capturing and sharing employee health and fitness data and showing fractional improvements or degradation in overall BMFI. It will also help identify high-risk employees that may require extra help. It will be a SaaS product that is payable in PUML tokens and will ultimately help improve the health and wellness of all employees.* |
| ***PUML Open API and SDK for 3rd party developers and integrations*** | *Shortly after our internal launch, we will open our API and SDK up for external developers and integrators to use. This will enable 3rd party apps, wearable hardware manufacturers and other mobile apps to connect directly to our members Digital Health Record for saving and validating unit data and challenge data.* |
| ***PUML Artificial Intelligence and Machine Learning*** | *The most exciting development with health data is the fact that we are yet to know what future AI and ML algorithms may be able to diagnose for a users data. Early diagnosis of medical issues can greatly improve the chance of a positive outcome. PUML.ai will be our own AI platform that our own members can choose to run their data through for doing self-diagnosis.* |

### PUML Side Chain Ledger

The PUML side chain ledger will maintain an internal account in addition to the EOS blockchain, in order to allow instantaneous payments and rewards between users wallets within the app and marketplace. The internal ledger will write to the private chain immediately and then periodically update the EOS smart contract in batches to optimise gas fees and avoid slow transfer times within the network.

When users transfer their PUML Tokens from their internal wallet to an external one or exchange, the transaction will be written to the blockchain immediately and subject to the usual transaction times of the EOS network. In the future we will work towards a fully decentralised model with no internal ledger, completely based upon the blockchain.

### The Current off-chain Platforms

PUML currently operates two off chain products. Zippy with over 30,000 members offers a way for gyms to track their members' visits and reward them for attendance. Zippy acts as the data verification and tracking technology in-between. Possible with over 100 trainers and wellness professionals is a marketplace, where members search for an individual in their area with specific fitness criteria. The company will migrate all the businesses and their members across to PUML and combine the technologies.

***Zippy***

Zippy is a rewards and engagement platform to allow fitness venues to create a bespoke digital rewards program for their customers. An activation is provided, which includes a tablet (Zippy kiosk app pre-installed) and QR cards. Gyms setup bespoke rewards programs, which includes internal rewards and limited local external 3rd party rewards with specific points values.

A user scans their unique QR card on the tablet and a set of business check-in rules defines whether a check-in is valid and on success credits the user with a predetermined set of points. Over time customers increase their points balances, which in turn unlocks rewards for redemption. The product has been stable and in the market for 2 years, with 99.9% uptime

https://zippy.com.au/

***Possible***

Possible is a mobile marketplace of health and fitness professionals. Members can download the app and find top curated fitness experts in their local area based on their geolocation. Possible's unique matching system provides you with the best professionals based on user-driven tag selection such as Performance, Strength and Training, Calisthenics and Nutrition.

The mobile apps have a complete real-time message system where users can enquire and message health and fitness professionals and inquire about services prior to purchasing services.

The apps also have a social feed with video and photo sharing and most importantly a fitness tracking with the ability to log all activities. The iOS and Android apps went live in Australia and New Zealand in 2017 and we are launching into Singapore in 2018.

http://possible.fit/

# *Target Customers*

The companies target customers come in 3 main types, **members** or individuals looking to be rewarded for fitness activity, **sponsors** who will pay members to participate in agreed challenges and **service providers** who will offer related products and services for sale on the platform.

## *Main target customers*

### Members

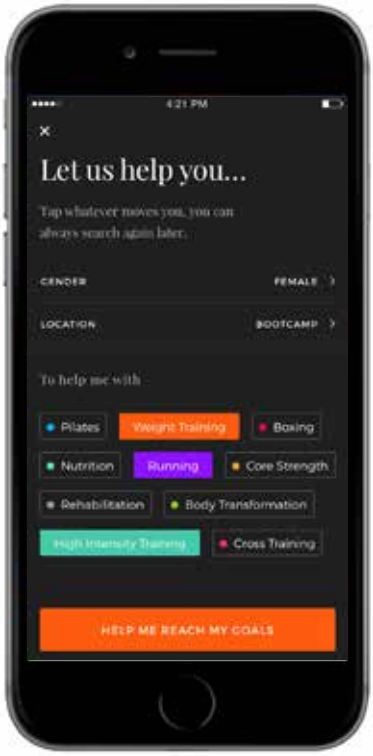
Gym members - attend a gym and understand the value of fitness

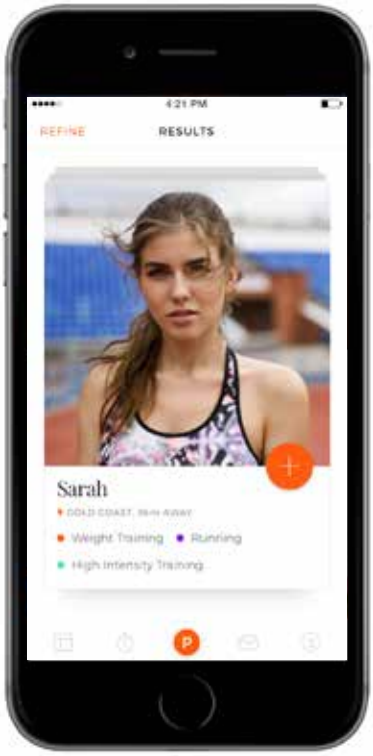
Health conscious - are educated in both healthy eating and exercise

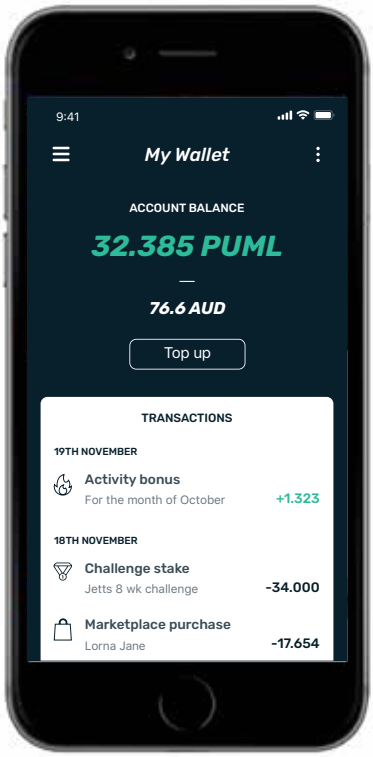
Sports enthusiasts - who participate in individual or team sports

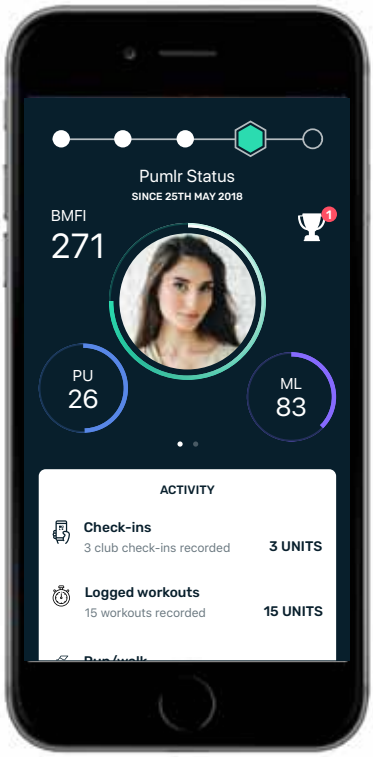
Sedentary individuals - who want to get fit, but struggle with motivation

# PUML Mobile Apps



# Sales & Marketing Plan

**Sponsors**

Gym owners, personal trainers, sports clubs, fitness venues - who want to reduce attrition rates, increase engagement and attendance

Events - who want to increase participation

Corporate wellness - who want to reduce sick days and increase productivity

Industry associations - looking to get people moving more or participating in specific activities

**Service Providers**

International/global brands - so multi geo launch approach can work

National brands - Geo specific to countries in which we operate

Digital products - Easy to deliver to members

Instagram businesses - Looking for a gym user target market

Experiences - Opportunities that can't be bought

## *Additional target customers*

Members who own wearables

## *Customer acquisition strategy*

The company will initially target gyms and personal trainers as both current products Zippy and Possible operate in those industries and understand the customer bases. These are natural customers to target to scale the business initially. Targeting these customers not only provides sponsors but will drive members to the platform also. Sports and fitness brands who can both serve as sponsors and service providers in the network will be next. This will then offer members more challenges outside the gym or personal trainer that they attend. By virtue of having more challenges via sponsors and more products/services to redeem, the next target customer will generate more members for scale.

## *Channels to market*

### Direct sales

PUML will build a sales team that will be aligned with the go to market strategy, targeting all sponsor and service provider target groups.

### Channel Distribution

PUML will remunerate 3rd party channels to sell the platform and its benefits.

### Value added resellers

With many different resellers in the market, PUML would look to work with sales teams that have customers that are aligned with the target customer groups. An example of this would be insurance sales.

### Independent software vendors (ISV)

The corporate wellness space is dominated by software companies that license their software into large HR departments. PUML would look to integrate its platform into these partners or use them as a direct sale force for product extension.

### Affiliate networks

Affiliate networks have access to traffic via publishers. The commercial terms are usually based on a % of the sale or a CPA. PUML would look to create campaigns that sign up members on a CPA deal.

### Trade shows and industry associations

PUML will attend tech, health, sports and fitness shows for brand awareness and partnership opportunities. At tech events, the team will be predominately looking for integration partners and new tech that could be adopted into the platform. Health, fitness and sports shows will be a chance to demo the platform and create brand awareness in our target industries with an expectation to drive new commercial opportunities through adoption.

Industry associations offer a dual opportunity with some potentially becoming sponsors, but other offering access to a multitude of other organisations for extended partnerships. Opportunities including the health/obesity, data protection, EOS, Blockchain verticals.

### Email and mobile notification marketing

Email marketing is still an effective medium for engaging any user base. Within the confines of new GDPR regulation, PUML will use segmented lists and personalised engagement. In-app messaging is easy becoming a very effective engagement tool, which can be used to drive member behaviour.

### Search advertising and SEO

The beauty of search advertising is the ability to target users based on keywords and phrases. Our strategy will be to build campaigns that target specific customer groups with related ads and landing pages to drive both sponsor and member sign-ups.

As the company builds out the website, new content sections will be added that target specific customer groups and related content to target high traffic key terms. The company will use online PR to drive traffic and value back to the website.

### Social media marketing and influencers

Social media is now a huge marketing opportunity, but content needs to be curated in different ways for each specific audience. We will focus on the channels that deliver the best engagement rate or measurable target KPI.

Social media influencers are brands in their own right and have large engaged audiences. We will identify key individuals who are aligned with our platform who can create their own branded challenges to promote to their audiences. As a company, we already have some key relationships with influencers in Australia and the UK.

# Team

## *Executive Team*

### *Damien King*

**Co-CEO/CTO**

Damien is an experienced technologist and advisor with a rich heritage in platforms and mobile application development. He has more than 18 years of experience in technology and engineering and has recently become a BlockChain advocate, founding both Blockchainers.co and PUML.io, a healthtech BlockChain company in Singapore.

He acts as a Technology Advisor and Mentor for many startups and innovative corporates in Australia and the UK. He has his own nearshore boutique Startup Studio, Adaptive Media, that is based in Ho Chi Minh, Vietnam and has founded 2 startups, Possible Fitness and Beeliked Media, a SaaS based a Social Promotions Platform in London.

He spent 7 years at Virgin Media in the UK as Head of Development, Digital Entertainment helping to deliver their STB VOD and onDemand video and music streaming services and was also the Chief Technology Officer for music streaming service Guvera. At Guvera he scaled and delivered a sophisticated global delivery platform to support 40 Million tracks across 20 Countries with over 10 Million app downloads.

Damien previously worked for BHP Billiton and has experience working with major UK companies such as The BBC, British Telecom and GlaxoSmithKline. Damien is a qualified ScrumMaster an Agile Practitioner and a Senior member of the Australian Computer Society (MACS Snr CP).

***LinkedIn:*** https://www.linkedin.com/in/damienwjking/

### *Adam Samuel*

**Co-CEO/COO**

Adam is a seasoned business owner/operator and entrepreneur co-founding multiple online businesses. Throughout his 17 year career his focus has been on leveraging online marketing to drive traffic and sales including Spainrealestate.co.uk a lead generation engine for a sales led online estate agency, nubricks.com an international real estate marketing platform and a multi-site cycling network working with the 3 largest online bike shops including Wiggle. In 2014 Adam co-founded BDS.com.au Pty Ltd, which ran Zippy.com.au a digital rewards platform for small businesses. He ran the marketing, market testing and product development of Zippy. The company became the official app of the Ekka 2017 a royal show with over 400,000 attendees and currently has over 30,000 users.

Adam has also been an online marketing strategy consultant for a number of international real estate businesses including Property Frontiers and Athena Advisors, as well as Fugro Geoconsulting a large geotechnical engineering firm.

***LinkedIn:*** https://www.linkedin.com/in/adamsamuel

### *Stephanie Verin*

**DMO**

Fast-tracked marketing executive with robust experience managing multi-functional project teams at "Blue Chip"companies. Recognized for being a high octane and self-directed intrapreneur within big corporations. Active in the entrepreneurship ecosystem through participations to several hackathons, tech meet-ups all over the world, coding bootcamp in NYC. Interests are in entrepreneurship, crypto-marketing and blockchain technology, digital marketing and business strategy.

***LinkedIn:*** https://www.linkedin.com/in/stephanie-verin/

### *Joel Martin*

**Financial Controller/CFO**

Joel's entire Career has been spent in Advertising (11+ years) working within accounting and commercial departments. Most recent post being National Finance Director as one of Australia's most successful ad agencies Ikon Communications.

Specialties include: Commercial Strategy, Systems Architecture & Operations/ HR
Twice award recognised within the largest worldwide ad group (WPP) as a high achiever.
Achieved YOY Profit growth at Ikon of >20% for 3 consecutive years. Launched Commercial Strategy Consultancy in 2017 offering value based bottom line improvement. Currently servicing clients from all industries including: Advertising, Technology, Architecture Engineering and Construction, E-Commerce & Supply chain management.

### *Randall Griffis*

**Commercial Officer/Partnership**

Randall is a passionate commercial leader and entrepreneur with an instinct for business trends and international market opportunities. With a highly influential network throughout Australia, USA and China. Randall has a finger on the pulse with disruptive business, and an uncanny ability to connect business with opportunity. Understanding all aspects of a business from funding to marketing and operations is crucial to make new and growing ventures successful. In 2008 Randall launched Fuse Global Business and worked across the globe within the start up ecosystem. Working with everyone from incubators, multiple startups and all the way through to IPO. This brings experience in all levels of business and a nimble ability to adapt any business to its market need. Now Randall works with startups and corporations from Fintech, Digital media, sports & entertainment through to Venture capitalists and investors.

# Team PUML

### Kadri Uljas

**Head of Marketing**

Marketing professional and Startup community developer, technology enthusiast and entrepreneur

### Philip Livingstone

**Head of Sales and Business Development**

Account Manager, ARDEX, Ex-International Sales Nautilus lifeline, Startup Sales Strategy and Business Development

### Annie Moon-Arkell

**Head of Social and Community**

Founder of Mo Creative Marketing. Ex eBay, House and The Iconic

### Olly Wood

**Head Coach and Fitness Professional - New Zealand**

Founder of Spotter Fitness, Online coach and qualified fitness professional and nutritionist

### Joe Papa

**Head Coach and Influencer Manager**

Founder of IGB, with over 9 years experience as a Qualified Fitness professional and influencers

### Sophie White

**Creative Director**

Senior creative with experience for The Blockchain Centre, BTCEXA, ACX, Cointree, GameCoinExchange, Victoria University and Innovation Community

### Thong Nguyen

**Head of Engineering**

Senior Engineer and project manager, BachKhoa University, member of Vietnam National University, Masters Malayisa Open Uni and PhD at Western Sydney University

### Hao Vu Nguyen

**Senior Engineer**

5+ Years of experience in Java development, The University of Science, member of Vietnam National University

### Yannik Heinze

**Lead Blockchain Architect**

Co-founder of Chainsulting, experienced blockchain architect and engineer. Startup advisor and author of Blockchain ABC.

### Huy To Ngoc

**Senior Backend Engineer**

Senior Android and Java engineer, graduated Computer Science Ho Chi Minh City University of Science, a member university of Vietnam National University.

### Dung Nuygen

**Senior Android Engineer**

4 Years of experience in Android development, The University of Science, member of Vietnam National University

### Luca Bernadino

**Senior DevOps Engineer**

Senior DevOps Engineer, founder of Bespoke Cloud, Tech Lead at BestJet, IT specialist, Flight Centre

# Advisors

## *Richard Moore*

**Non Executive Director and Investment Advisor**

As someone with funds management / financial markets experience, I have a very broad knowledge of what drives different industries and companies, as well as understanding the mechanics of how companies make decisions. My time as the CEO of an ASX-listed company brought numerous practical challenges across all aspects of running a business which I successfully worked through.

With an IT degree, I am technically literate, can quickly learn new IT products and tend to be a power user of IT applications if I am required to use them extensively. Importantly, I know how to bridge the gap between commercial business requirements and IT. As a mathematician, I am very logical and apply sound analysis in all the work I do. I have the ability to process and analyse large amounts of data to provide valuable commercial information. I can also deliver technical projects to achieve commercial outcomes using skills such as presentations / report writing, negotiation and sales / marketing.

***LinkedIn:*** https://www.linkedin.com/in/richardmoore/

## *Phil Gunter*

**Loyalty Rewards Advisor**

Phil Gunter is the Founder and Principal of New World Loyalty. Phil managed Virgin Australia's Velocity program for over 7 years, transforming it from a basic and costly marketing program into a sophisticated, effective and highly profitable business valued at $960m. Previously, Phil held several senior roles at Westpac, Amex, CBA and British Airways. Phil has a First Class Business Degree and professional qualifications in Finance and Marketing. It is this blend of commerce and customer, together with exceptional analytical capability, that has enabled Phil to stand out in the Loyalty industry as a thought leader and innovator. Phil has been recognized by his industry peers as one of the most successful loyalty experts in the world having been awarded the 'World's Best Loyalty Program Manager' in 2010 and 'Most Innovative Loyalty Program Manager' in 2013.

Phil started New World Loyalty in 2013 quickly building a skilled team of professionals and a reputation for delivering invaluable loyalty insights. NWL has provided consulting services and advice to clients in multiple sectors and countries. Clients include Suncorp, Medibank, Dominos, Crown, CBA, Lorna Jane, Priceline, Scentre (Westfield), Flight Centre and multiple airlines. NWL believe that to succeed a loyalty strategy must blend the external opportunity with the internal objectives for a design that is both customer driven and commercially viable.

***LinkedIn:*** https://www.linkedin.com/in/philgunter

## *Dr Clarence Tan*

**Futurist and Blockchain Advisor**

Dr Clarence N.W. Tan is a futurist and was the Asia Pacific Ambassador for Singularity University (SU), a benefit corporation based on NASA's research campus in Silicon Valley. He is the co-founder of Gogotech, a personal mobility device company that is currently working on a motorized kit for wheelchairs, and the Principal of Dr CT Pty Ltd, that is an ExO.Works partner. Dr Tan is an ExO.Works Ambassador as well as a certified consultant, coach and agent. He was also the founder of Bond Wireless, an Australian-based award-winning wireless software applications and services company. Prior to that he was an academic and an investment banker. He has been involved in a number of start-ups as a founder, mentor and investor. He is passionate about exponential technologies particularly in the areas of education, health, seeking and sharing knowledge through humor.

Dr. Tan is a Fellow of the Australian Computer Society (FACS) and a Fellow of the Financial Services Institute of Australasia (F Fin). He has a number of academic publications including a book, book chapters and peer-reviewed papers in the area of soft computing and mobile applications. In addition Dr Tan holds a number of patents in mobility technology globally.

***LinkedIn:*** https://www.linkedin.com/in/drctan/

## *Fabian Bartnick*

**Revenue expert and blockchain advisor**

Fabian is currently the Vice President of Asia Pacifc & International business at LodgIQ overlooking all aspects and operations within the region and also supports OTA Insight and Travel Tripper in their Asia Pacific specific regional requirements. Previously Fabian was the Director of Global Revenue Generation at Tune Hotels Group encompassing Sales, Distribution, Business Analytics, Revenue Management and the Central Reservations Office. Having lived and worked across 4 continents, Fabian has a rich history in hospitality and a thorough understanding of the global revenue optimization landscape. Prior to joining the Tune Hotels Group, Fabian headed up the Consulting Division in South East Asia for IDeaS – A SAS Company deepening his understanding in price optimization, visual analytics and total revenue management. Fabian has successfully turned around revenue performance in many companies by providing strategic consulting services as well developing powerful revenue analytics solutions that empower the business to maximize its revenue potential. Fabian has been on the Board of Directors for HSMAI South East Asia and currently sits on the HSMAI Advisory Board.

***LinkedIn:*** https://sg.linkedin.com/in/fabianbartnick

## *Holly Stephens*

**Marketing and Blockchain Advisor**

Holly is the Chief Marketing Officer of Beam, Founder of Triangles and startup and blockchain Advisor to Tech Ready Women, an accelerator and online program from non-tech aspiring female founders along with helping blockchain companies at Prismatik. She founded a marketing agency for startups in 2017. She is a regular guest on Sky News Business and speaker and moderator at technology, blockchain and marketing conferences along with interviewing entrepreneurs on her YouTube Channel.

Holly worked at Google on initiatives such as Google Pay in Australia and New Zealand and leading The Digital Garage, helping small businesses and startups with digital skills training with the aim to train 2 million Europeans in two years. Previous to this, Holly worked in Product and Marketing roles at Xerox and Mimecast. Holly has a Bachelor of Honours from Nottingham Business School.

***Awards***: Winner of Smart 30 under 30 2018, Winner of Community MVP Australasian Startup Awards 2017

***LinkedIn:*** https://au.linkedin.com/in/hollystephens1

## *David Gerrie*

**Financial Advisor**

David has a passion for working with like-minded business leaders to create high performing work places and companies.

He has had an illustrious 20-year career in agencies ranging from global networks to locally owned operations. He joined Ikon in 2010 from Starcom Mediavest where he was Financial Controller. Prior to that he held senior roles at PG Lion Resources and ZenithOptimedia.

David is responsible for the alignment and prioritisation of all Ikon investments and ensures operational excellence across the national Ikon Group, working closely with the Managing Partners in Sydney, Brisbane, Melbourne and Auckland.

***LinkedIn:*** https://www.linkedin.com/in/david-gerrie-6725b523/

## *Dr Ramana Panda*

**Medical Advisor**

Dr. Ramana Panda, who is an entrepreneur with interest in the Healthcare management and Startup units of Health systems. He has been involved in several Health Startups Dr. Panda has worked in many rural healthcare locations and found the practice of Telehealth as a solution to providing specialist health services to rural communities.

Dr. Panda is a founding member and current President of Health Academy Australia, which is an online teaching institute with 6500 students around the world. He is currently involved as a Director and Board member in several other organisations.

Dr. Panda is the Founder of Telehealth Networks Pty Ltd and acts as Chairman and Chief Executive Officer. He also has owns and manages Health centres under the brand of Medical Centre Network, which promote the concept of Holistic care, thereby providing an One Stop Health care.

***Specialties:*** Healthcare management, mHealth, Hospital in Home, Medical Home devices, Telehealth systems , Security in mHealth, Information Systems in Medicine, Development of Medical Ecosystems, Vocational Education

***LinkedIn:*** https://www.linkedin.com/in/ramanapanda/

# Partners

We currently work with a select group of Partners and Gym franchises in Australia and will look to develop those relationships globally.








# Token Economics

## Overview

The PUML token is a Utility token that will give access to tiered membership, product services, marketplace, rewards, discounts and transactional benefits.


## Fee Contract

A fundamental utility of the token is to enable transactions across the PUML marketplace and PUML sponsors. A smart contract would accept all fees then distribute them to the following agreed stakeholders:

***PUML Company:*** 80% of the fees collected go to the PUML company – as sales revenue to be used for company operations

Better Health Academy: 15% of the fees collected will go to the Better Health Academy – focused on community incentives, data rewards and user growth.

***Charity Donation:*** 5% of the fees collected go to the PUML Charity for distribution to approved charities that specialise in improving health and wellness.

| | *Transaction Fee* | *Setup Fee* | *Saas Analytics* |
|---|---|---|---|
| ***Corporate Wellness*** | *3% when purchasing tokens* | *$1999 AUD or PUML tokens* | *$499 AUD pm or PUML tokens* |
| ***Event Sponsors*** | *2% when purchasing tokens* | *$1500 AUD or PUML tokens* | *$199 AUD pm or PUML tokens* |
| ***Service Providers (Gym/PT/Yoga instructor, nutritionists)*** | *2% when purchasing tokens* | *free* | *$79.99 AUD pm $49.99 AUD pm $9.99 AUD pm or PUML tokens* |
| ***Member*** | *1% transaction fee* | | |

## *Dual Data Rewards*

PUML members receive dual rewards where users constantly receive micro-rewards for contributing data units as well as larger payments when data is licensed from PUML.

***Micro rewards =*** Total number of tokens available in the Better Health Academy / Total Current Users / Lifetime Data Units * PUML Current TokenPrice = MicroData reward

*Micro Reward = ( tBHA / tCU ) / (LDu / $Ptp)*

***where:***

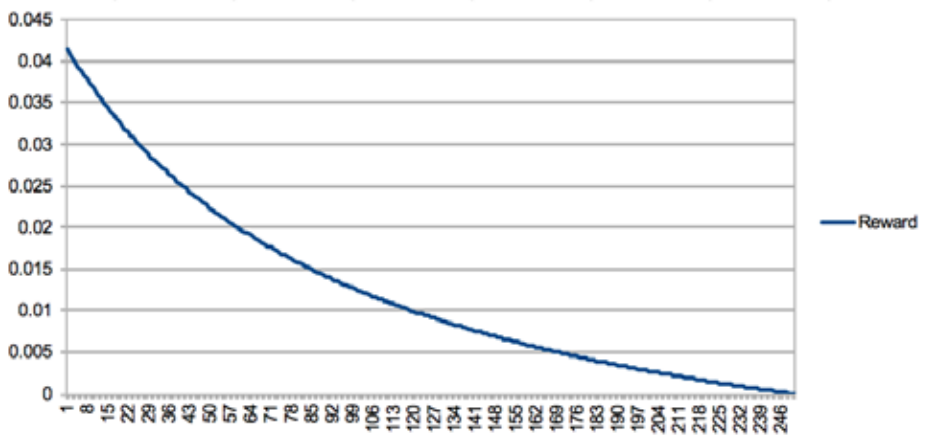
***tBHA - Total tokens in the Better Health Academy***

***tCU = Total Current Users***

***LDu - Lifetime Data Units***

***$Ptp = PUML Token Price***

### Micro Reward formula



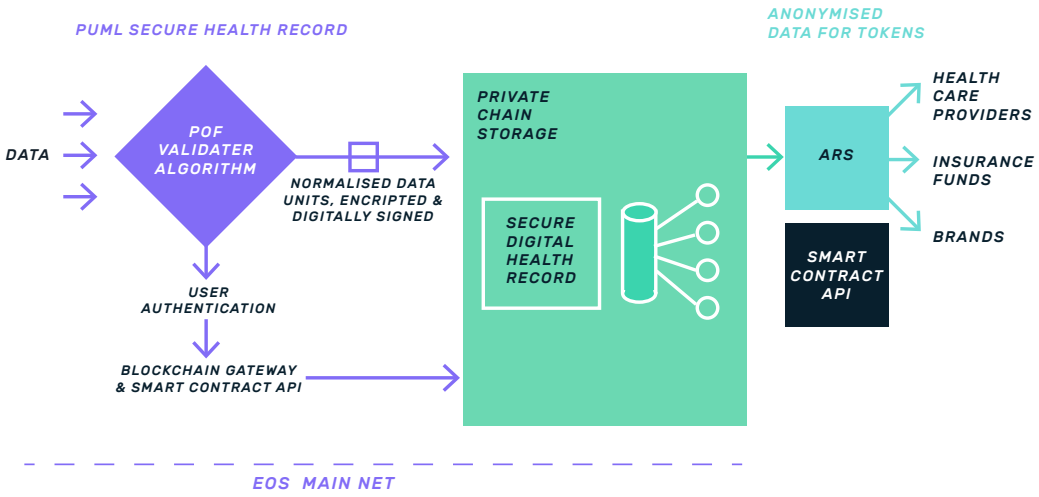

### Data Rewards

PUML will bring dataset purchase campaigns to its members from large organisations, health funds, medical trials and other interested parties. Members can opt-in to share their relevant data and receive tokens in return.

Similar to the marketplace, PUML will negotiate and facilitate a number of deals within the health and fitness space and offer these in the form of PUML tokens to community members & tiered users.

| ***Revenue split*** | ***PUML*** | ***User*** |
|---|---|---|
| ***Company/Organisation willing to pay for anonymised data*** | *10%* | *90%* |

## Fee Pool Distribution




### *Challenge Entry Fees*

By introducing two tiers of challenges for most (if not all) challenges on the platform we can incentivise users to pay an entry fee in tokens (say $1-$50 of PUML tokens depending on the challenge) these tokens are effectively a commitment from users in order to successfully complete the challenge and in return receive higher rewards. This structure is much more powerful when we add a failure state for the members tokens if the challenge isn't complete – With these lost tokens going to back to the Better Health Academy or Charity.

| ***Who will buy tokens*** | |
|---|---|
| ***Sponsor Purchases*** | *Large brands and corporates will purchase tokens to access the user base and PUML community – Spending dollars to purchase PUML tokens and then distribute to the community in the form of successful platform challenge rewards.* |
| ***Marketplace Activity*** | *PUML will have an online marketplace for purchasing a series of health and fitness related items/merch. This will include gym memberships, body composition scans, brand swag and much more. Products and services will be purchases using earned or paid for PUML tokens. By using PUML tokens the members will benefit from low transaction costs and member-only discounts.* |
| ***Participation Entry Fee*** | *Members will pay a set number of PUML tokens (fee) to 'commit' to a challenge.*<br><br>*On successful challenge completion, members will receive their fee back and the agreed sponsor token amount. If participants fail a challenge their fee will get sent to the Better health academy or charity donation.* |

## Token Allocation and Metrix

This section below outlines the various details of the token.

| Attribute | Details |
|---|---|
| Symbol | PUML |
| Platform | EOS Blockchain |
| Token Supply | 500,000,000 Tokens |
| Token Available | 238,500,000 Tokens |
| Token % | 48% |
| Token rate | 1 PUML Token = $0.06 USD |
| Soft Cap | $1,500,000 USD |
| Hard Cap | $10,000,000 USD |
| Targeted Cap | $7,000,000 USD |
| Accepting | EOS, BTC, ETH, USD, SGD |

## Early allocations

| | % | Price USD | Discount % | Tokens | Amount USD |
|---|---|---|---|---|---|
| Round 1 | 22.01% | $0.04 | 33.33% | 52,500,000.00 | $2,100,000.0 |
| Round 2 | 23.48% | $0.05 | 16.66% | 56,000,000.00 | $2,800,000.00 |
| Open | 20.96% | $0.06 | 0% | 50,000,000.00 | $3,000,000.00 |
| TOTALS | | | | **158,500,000.00** | **$7,900,000.00** |

Any unsold tokens from the sale event will be allocated to the Better Health Academy.

## Token Vesting

The tokens will be allocated after we have completed the sale and pre-purchase of tokens through private and pre-public rounds.

| | 3 months | 6 months | 12 months | 18 - 24 months |
|---|---|---|---|---|
| Founders | | 5% | 25% | 70% |
| Advisors | | 40% | 40% | 20% |
| Team | | 10% | 30% | 60% |
| Influencers and Community | 100% | | | |
| Private/Pre-sale bonuses | 8.3% p/m | 8.3% p/m | 8.3% p/m | |

## *Token Actors and Economy*

Lists all the actors and has a diagram of the flow of tokens.

### PUML Members

- Pay in tokens to access the platform and stake tokens in order to participate in certain challenges (behaviour)
- Pay for goods/services in tokens on the platform/marketplace (behaviour)
- Be rewarded in tokens for creating and providing data to the platform (incentive and token solution)
- Be rewarded in tokens for participation and engagement with brands and service providers (incentive and token solution)

### Service providers

- Be paid in tokens for services provided to users (behaviour)
- Pay for access to the community/market in tokens (behaviour)
- Receive access to the community, sell services to them and analyse their data(incentive)
- Tokens must be purchased for these providers to sell their services on the platform (token solution)

### Token Sponsors

- Pay in tokens to access the community/market (behaviour)
- Purchase tokens to reward users for participating in their events (incentive)

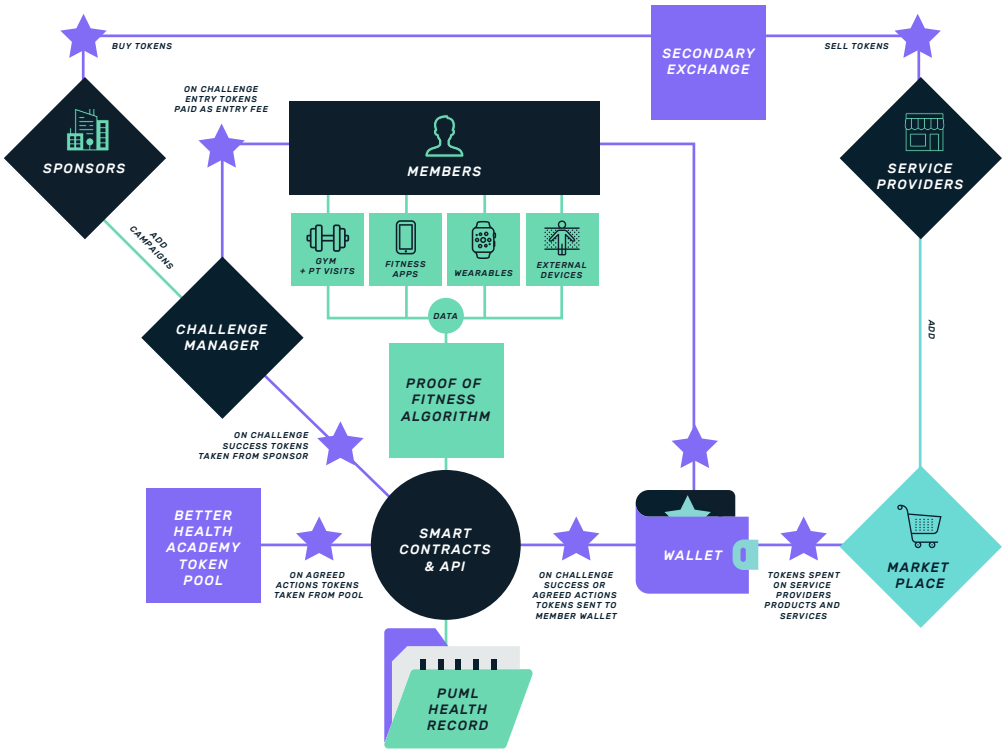
### Corporates

- Corporates wanting to engage their employees and data(incentive)
- Pay for access to the platform, for challenge creation, data and curated. (behaviour)
- Receive valuable insight into the behaviours of the employees (incentive)

## *Marketplace product providers*

- Get access to the PUML global membership  (incentive)
- Use tokens to incentivise users to participate in challenges which relate to their products/utilize their products (behaviour)
- Receive tokens as payment for products sold on the marketplace (incentive)

## PUML Economy




## Use Cases

### User data - acquisition reward

Consumer downloads app

Registers via mobile phone number

Adds 3 units of data into their PUML Health Record

***1.> Age***
***2.> Height***
***3.> Weight***

On successful creation of Health Record, member is rewarded with 500 PUML tokens as a member acquisition cost.

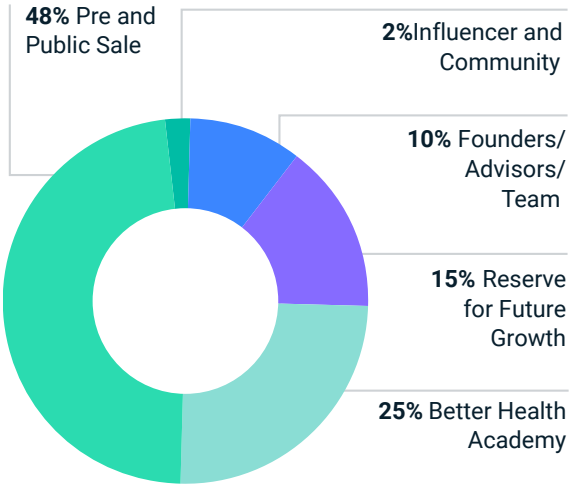
### Member data - micro reward

- Member connects approved 3rd party app via PUML mobile app
- Member completes Exercise as a Medicine activity based on 3rd party API
- PUML Validation - Proof of Fitness engine analyses and reviews activities, normalised data and applies a micro reward for each unit of activity completed.
- Member receives %PUML token per approved and validated unit as per Micro Reward.

### Member data - Challenge competition

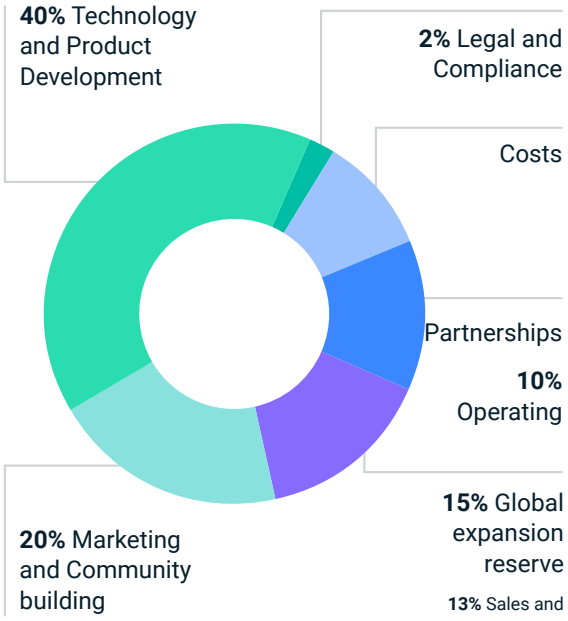
- Member selects challenge competition to enter, such as 8-week challenge
- Member agrees to accept an entry fee for participation in the challenge
- Member fee locked up with smart contract along with other participants
- Member complete activity as required by the challenge
- PUML Validation - Proof of Fitness algorithm analyses and reviews activities
- When challenge date is complete, smart contract returns the entry fee if all goals are complete or return the entry fee to the Better Health Academy for further incentives.

## *DISTRIBUTION*




- The better health fund academy will be used to seed the network and incentivise members to sign up and onboard.
- Influencers will be provided tokens to offer competition prizes to their audiences.
- Founders will have a long vesting schedule to show commitment to the project.
- Team and advisors will also vest tokens over shorter timeframes.

## *USE OF FUNDS*




Funds raised will be used to develop the PUML platform and private side chain project, including the health & fitness record, mobile apps, wallet, marketplace, as well as integrations with 3rd party data sources. To drive further product adoption funds will be used to attract new customers to the platform and to keep them engaged. To increase both the number of sponsors and service providers funds will be used to build a business development team.

Expansion into new markets will require funding requirements for staffing, office space, marketing, and legal advice as well as increased technical development and infrastructure costs. The liability for circulating tokens that arise as a result of the token generation event also places a requirement on PUML to hold certain amounts of funds in reserve to cover the short-term costs of reimbursing service providers in fiat currency when PUML Tokens are redeemed in the marketplace.

# Road map

**Q4** PUML 1.0 released to gyms and personal trainers

## 2017

**Q1/Q2** Research and planning Blockchain implementation

**Q3** Acquisition of Zippy Fitness assets and IP

## 2018

**Q4** **Private Sale of Tokens in progress**

**Q4** Partnership Programme

**Q1** EOS token launch and account setup

**Q2** PUML 2.0 MObile apps and platform released

## 2019

**Q3** Health and Fitness Marketplace

**Q4** PUML 2.1 Wallet and Digital Health record released

## 2020 and beyond

Proof of Fitness Validation algorithm

Corporate Wellness Challenge Platform

Open API for PUML Digital Health Record integrations

PUML AI and Machine Learning

Talk

# *Let's talk...You can reach the PUML team on any of the following:*

***Reach***

| | |
|---|---|
| ***General enquiries*** | ***hello@puml.io*** |
| ***Token Sales*** | ***tokens@puml.io*** |
| ***PR and Media*** | ***media@puml.io*** |
| ***Marketing*** | ***marketing@puml.io*** |

***Social***

| | |
|---|---|
| ***Web*** | ***https://puml.io*** |
| ***Telegram*** | ***https://t.me/pumlapp*** |
| ***Medium*** | ***https://medium.com/@pumlapp*** |
| ***LinkedIn*** | ***https://linkedin.com/company/pumlapp*** |
| ***Twitter*** | ***https://twitter.com/puml_app*** |
| ***Instagram*** | ***https://instagram.com/puml_app*** |
| ***Facebook*** | ***https://www.facebook.com/pumlapp*** |

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*your health and fitness data*

*+ Earn Fitness rewards*