THE HEALTHY LIVING & FITNESS APP FOR LIFE EXTENSION

THE PATHWAY FROM HEALTHCARE TO HEALTH

AI & Blockchain for Healthy Longevity
(in partnership with Eterly)

White Paper

SUMMARY

LONGEVITY UNITED
THE HEALTHY LIVING & FITNESS APP FOR LIFE EXTENSION

Longevity United Inc. is establishing a joint venture with **Eterly** Inc., with the aim of creating the leading Longevity-focused mass market consumer-oriented ecosystem.

Longevity United will conduct the Token Sale, the name of the token is "Longevity Token" (symbol: LTY). Longevity United is the ecosystem, marketplace and community of users, where technologies will be developed in joint venture with Eterly Inc. This ecosystem will use the Eterly mobile app, whereas Longevity United will be focused on developing blockchain and cryptography technologies, marketing, client base development, engaging users and promoting active participation in ecosystem development, and applying multiple ambassadors and evangelists of healthy Longevity.

Eterly - the first scientifically backed Longevity Mobile App, developed by a team of top scientists, developers and entrepreneurs based on years of study of the Longevity field, medical research in modern anti-aging geroscience and the daily monitoring of people's levels of wellness, fitness and capacity to increase their healthy Longevity based on practical applications of aging research.

Eterly's MVP mobile app is launched and available on App Store (here) and Google Play (here), and its initial focus group is formed and active. Eterly is currently in the progress of acquiring feedback from its focus group, and is in the process of implementing feedback prior to the **official launch of the finalized app estimated by July 10.**

Longevity United is the world's first healthy living and fitness platform and technological ecosystem designed and built by experts in the field of healthy Longevity. Eterly utilizes wearable technology to collect user data - such as daily fitness activities, dietary information, general wellbeing, and personal health - and stores it on a platform that uses blockchain technology, putting the user in full control of their data. By combining users personal health records, anonymised and secured on the blockchain, daily fitness data and groundbreaking medical and pharmaceutical research, Eterly will be able to make recommendations about diet, medicines, treatments and supplements that can safely help to increase their Longevity.

4 Distinct Elements of the Longevity United Platform:

- Universal front-end mobile app aimed for consumers,
- Blockchain Back End for R&D, Tokenisation to create incentivisation across the platform,
- "Open Marketplace", where users can find curated, recommended and validated treatments and products, e.g. supplements, health foods, vitamins, lifestyle coaches etc,
- AI driven health and fitness analysis and recommendation system for healthy diet, lifestyle regimes, nutraceuticals and AI-driven personalized precision medical advice provision.

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WHITE PAPER

1. ABSTRACT: GETTING TO KNOW LONGEVITY UNITED

Technology is revolutionising the world of healthcare. It is giving the general public a continuous flow of accurate information by which to manage their health and seek treatment, by using the web, facetiming with doctors, and so on.

With more knowledge however, comes more choice. Today's healthcare market is already saturated with health and fitness solutions that aim to extend healthy Longevity: diets, anti-aging therapies, supplements, treatments, cures, and most importantly, preventative measures.

This market is huge but misunderstood, sometimes even by the very companies behind the technology itself. Despite the rise in transparency, the healthcare industry is fragmented, unstructured, and lacks scientific rigour. Discovering what is good for us, what may be harmful, what we can do to improve our health, how we can fight the aging process, and to what limits we can, or should, push our bodies to, is problematic.

It has become a challenge simply to choose from the plethora of products in the Longevity marketplace, and even harder to find unbiased and scientifically sound opinions about what we should and should not be doing to keep ourselves in the best possible shape, while keeping clear of life-threatening illnesses.

Could we solve these problems by developing a universal, science-backed solution for healthy Longevity?

We believe we can. And we believe that the solution is Longevity United.

Aging is the new final frontier for humanity. The elusive goal of increased healthy Longevity has been a source of personal fascination for many for centuries, but all too often the study of long life had been the preserve of a small number of obsessives. This is no longer the case thanks to the democratisation of knowledge brought about by the information age. Knowledge is power, and the information age has empowered us with the ability to influence the course...and length, of our lives.

How best to harness this newfound opportunity?

At Longevity United, we believe that a holistic, technology driven solution is the answer. The more people join our platform, the better our chances of success. We also need to incorporate the best sources of knowledge and the latest scientific thinking into our platform. Funding too will also be a critical component.

In an age dominated by social media, we find it surprising that the most successful platforms are at best materialistic, and at worst, opportunistic and exploitative. At Longevity United, we wish to create an ecosystem where anyone can join and benefit from the same opportunities, be it through enhanced knowledge of the science behind modern medicine, a better understanding of the state of our health and the health of our loved ones, or taking the opportunity to take positive steps towards improving our biological condition.

We believe that the first major step that we can take toward this goal will be to change the way we record and store data and information about our health. Blockchain is particularly significant in this regard. This is because for the first time, we are presented with a technology that is secure and that has the potential to form a universal and irrefutable log, allowing us to gain a 360 degree view of the state of our health: from every check up that we've attended, every medicine we've taken, to diets or fitness regimes that we have undergone.

Meanwhile artificial intelligence and the application of various machine learning techniques such as recognition, knowledge management and robotics can teach us more about the precise effects and outcomes of the each potential course of actions that we could take to maintain and improve our health.

For the first time in history, we are beginning to view aging itself as a disease, and disease as a symptom thereof. It may sound far fetched at first, but we must adjust our collective mindset. Through developments such as precision medicine, precision health, and P3 medicine, which we will discuss at length in this document,

the medical industry has already taken great strides toward this modus operandi.

We must also begin to adapt to the commercial realities of healthcare. Pharmaceuticals are data hungry, and we are all the potential suppliers of that data. We have a duty to take control of every aspect of our health to strengthen this relationship

Longevity United has been purpose built to manage this relationship. The platform works through collaboration; it ensures that the individuals that make up the platform have full control of their destinies, paving the way for them to voluntarily participate in this relationship.
The rest of this paper explains how we will achieve this, shedding light on the opportunities, and highlighting what is necessary to deliver the best possible product and platform.
Naturally, it is not just individuals who care about their own wellbeing. As the world's population ages, nearly all business entities from every major industry around the globe are presented with a new and unique set of challenges. And besides business, governments are hungry for data that will allow them to assess the state of citizens health with pinpoint accuracy.
For example, the current average global retirement age of 64 was established prior to the rapid rise in life expectancy which occurred in the second half of the 20th century, and government and private sector pension schemes have not yet accounted for the possibility of an increased life expectancy in the near future driven by modern biomedicine, an underestimate worth trillions of dollars. Failure to meet pension obligations would result in rising poverty among the elderly, higher taxes, inflation and political instability: a catastrophic scenario known as 'The Silver Tsunami'. Insurance companies must therefore think ahead about how an aging population that is living longer will affect premiums, and to do that they need information about health, drug development, and medicines.
Furthermore with a decreasing support ratio (i.e. number of working people per pensioner), the ability of private and state pension funds to pay old age pensioner (OAPs) their pensions using the current rates will also diminish. Corporates must deal with the fact that billions of people worldwide will work for many more years beyond the current retirement age and the consequences in terms of health provision, productivity, and structure. They too wish to know more about the health of their employees across the entire age range. A healthy worker is a happy worker, after all. Fortunately, science-backed lifestyle technology is opening the following doors:

Health device makers can market themselves to a wider, more sophisticated audience, as devices are becoming an indispensable part of people's health and fitness regimes. These devices have the capacity to interpret and process user data in light of the latest medical research and make personalised adjustments to their users' daily activities.

Companies yearn to know about their employees to create a more holistic health program. Examples of companies already offering digitised, wearable driven corporate wellness programs include YouEarnedIt, Fitbit and Peerfit. Those efforts have no rigorous medical backing, however, and fail to address many of the issues at hand.
But information-backed technologies would allow personalised health plans and diets for a corporate member of staff recovering from a serious illness to hasten their recovery.

Remote patient monitoring is the latest innovation in the healthcare industry. It allows patients to keep a check on their own conditions, eliminating the need for repeated visits to the physician's office.
There is hardly a business that wouldn't be better off if it were aware of the state of their employees' health.
And then of course, there is the health industry itself. Data, and how we manage data, is critical. Interpreting data happens to be what we view as Longevity United's greatest strength. We are building a platform and team comprised of some of the world's best minds within the fields of AI (machine learning in particular), Global Pharma, Medicine, Health and Longevity. Healthier Longevity is an emerging new prospect, and together we can make strides towards a healthier, longer-lived society. Living longer without suffering, attempting to control and even reverse the process of aging, perfecting personalised health and the ability to identify disease and illness before they become life-threatening are our ultimate goals. We view aging, however multifarious it may be, as just another disease, and together we believe that we can, and will overcome it.

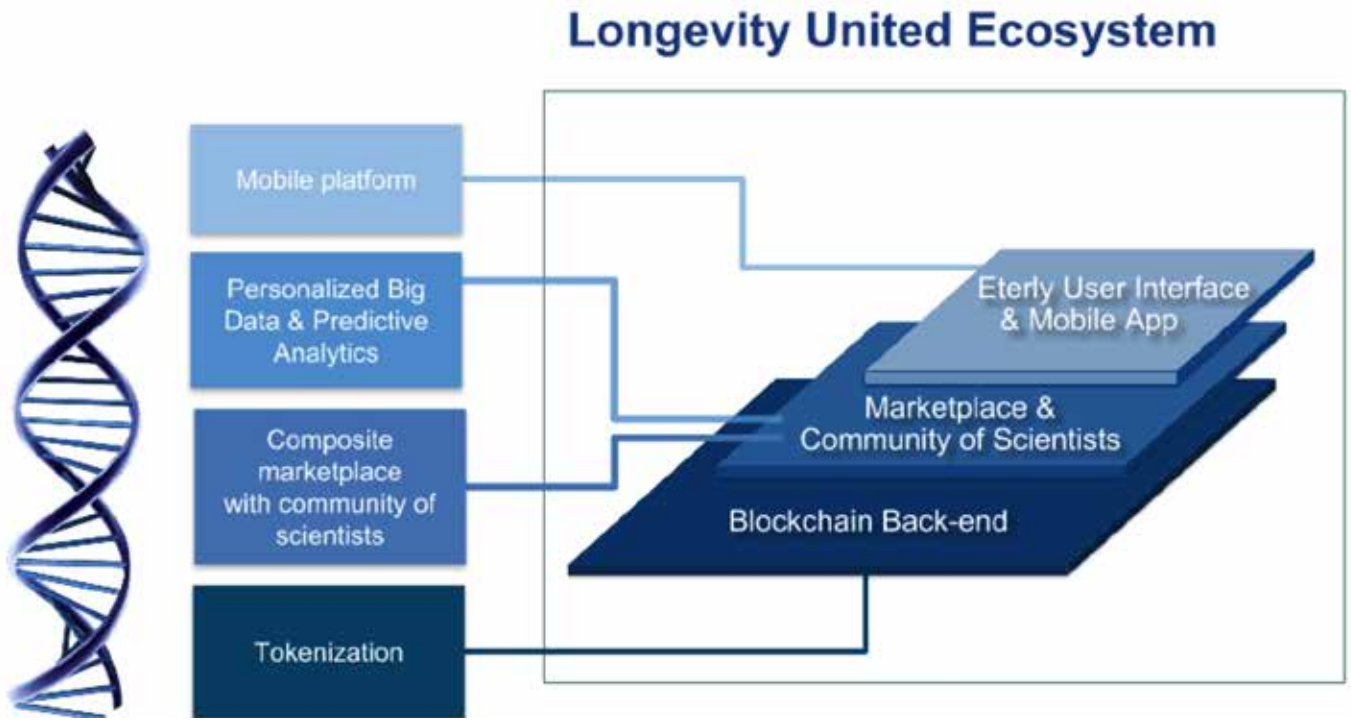
We consider time to be the basic unit of value in the modern world. That's exactly why we have chosen to use the crypto investment market instead of a traditional shareholders (VC) model to raise extra funds to aid the development of the platform and app. We hope that by taking the Token Sale route, Longevity United can bring a common dream of many to life in a much shorter time frame.

2. INTRODUCTION

2.1. THE PLATFORM

Longevity United is a health and fitness product designed by a team of scientists, fitness evangelists, medical experts and developers of technology who have devoted their time and energy to studying the secrets of a healthy lifestyle, with a particular focus on the emerging science of Longevity. Longevity United's activities fall into two basic categories:

- Scientific research focused on the analysis of internal biochemical and functional processes of the human organism with the aim of extending a person's healthy lifespan.
- Development of a product that can collect and process medical research data and offer it to end-users in a simple, convenient form.



Because the Longevity United platform is built on the blockchain, in other words on a decentralised network using distributed ledger technology, it provides an unparallelled level of security when it comes to data use, as well as the fastest and most efficient data processing techniques. When combined with the latest digital technologies and powerful AI, Longevity United's platform leverages all the benefits of blockchain technology to help store, analyse, and distribute data through its rich user interface.

2.2. LONGEVITY

It has been widely suggested that the human body is biologically intended for 120+ years of fully-fledged, healthy life. But what is the current state of play? People who live to be 100-120 years are considered exceptionally long-lived. So-called "supercentenarians" are extremely rare. But it is not overly contentious to suggest that, with further advances in gene therapy, even 120 years should not necessarily be considered an unusual human age limit.

LIFE RECORD OF 122.5 BY JEANNE CALMENT WHO DIED IN 1997.

Reach

123

Win

$1M

Forbes / Pharma & Healthca

Venture Capitalist Promises $1M To First Person To Reach 123rd Birthday

Sarah Hedgecock, FORBES STAFF
Apr 21, 2015 12:40 PM
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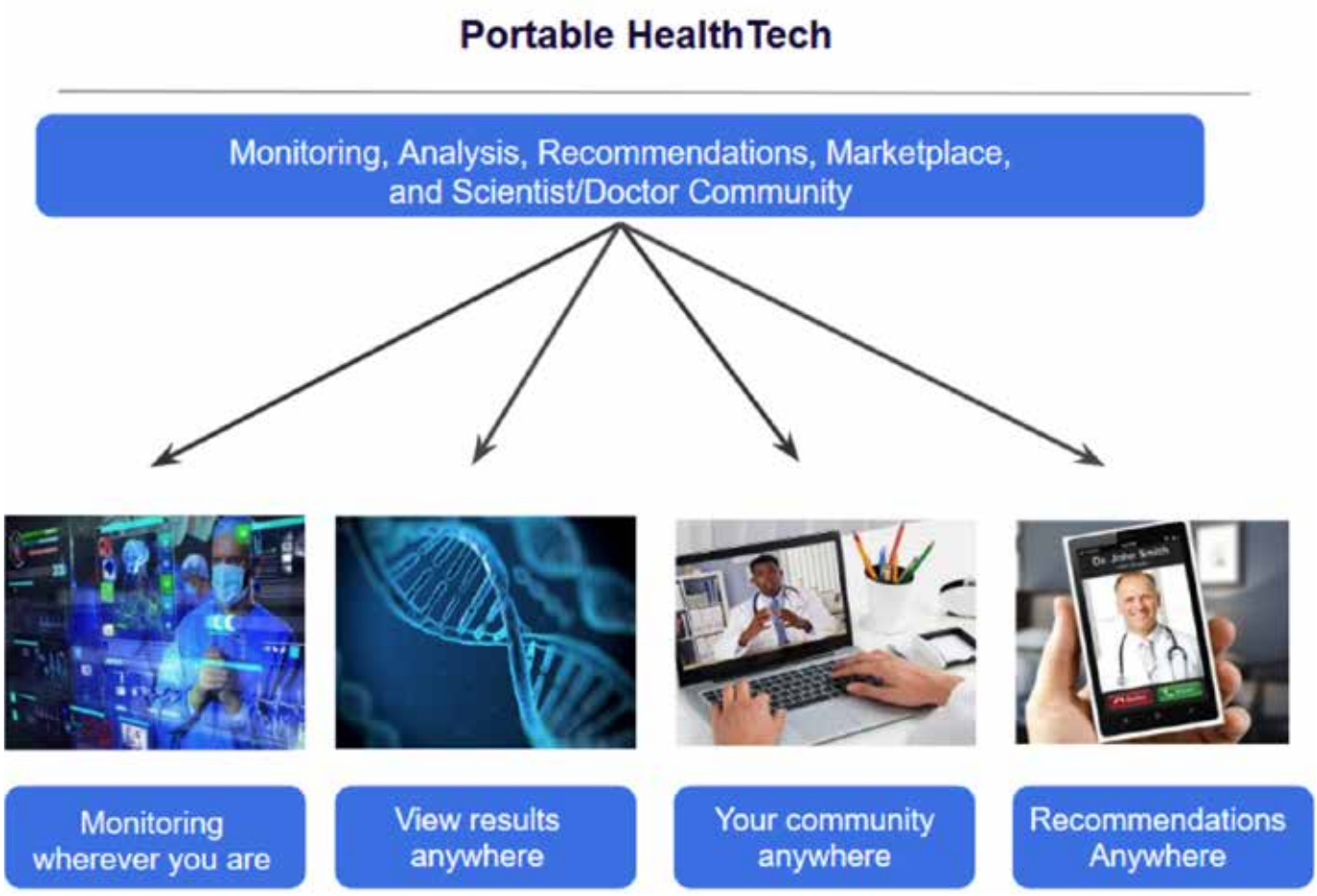
Venture capitalist Dmitry Kaminskiy thinks he has what it takes to lengthen people's life spans: a million-dollar prize, which he will award to the first person to beat the current longevity record and reach his or her 123rd birthday.

Although it began life as an app for coaching users to adopt a fitter and healthier lifestyle by analysing their personal health data and the latest, breaking medical research, Longevity United's ultimate focus is aimed at life Longevity and quality. At Longevity United, our intention is to create a vast database of scientific research materials that will be stored and accessed via the blockchain, using tokens which can be "mined" by users for achieving their health goals, and by scientists for contributing their work to the platform.

As well as leveraging the work of scientists and research institutions, the Longevity United platform will be capable of independently analysing user data on lifestyle, nutrition, sleep patterns, susceptibility to certain diseases of aging and more, providing personalised recommendations to eliminate or soften the impact of future health problems. As a result of using Eterly to maintain a healthy lifestyle, it is our contention that users can avoid many life-threatening diseases and increase the length of their lives.

Additionally, Longevity United's platform will ensure that users are firmly in control of their own data and are rewarded for sharing it with Longevity Tokens ("LTY"), which can be exchanged for goods and services that will be developed on, and available through, Longevity United's platform.



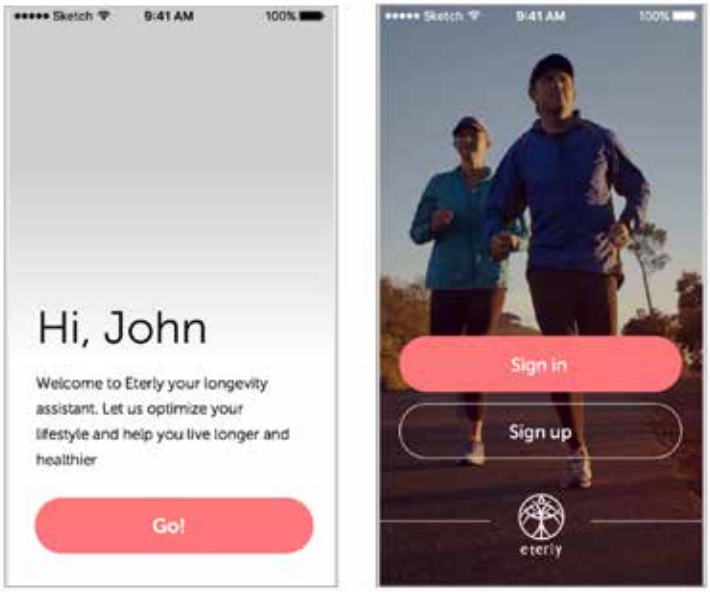
2.3. LONGEVITY UNITED GOALS

In summary, our goals are:

- To create an advanced, industry-leading health and fitness app that acts as a personal trainer, both in terms of dispensing healthy lifestyle advice and planning fitness regimes that can keep users in good health, helping them to fight and even reverse the aging process, and prevent the onset of life threatening diseases.
- To store users' personal health and fitness data safely and securely using distributed ledger technology, or "blockchain", giving them full and exclusive rights over the use of their data.
- To create a daily updating, bespoke "Longevity Score" for each and every user of the Longevity United platform using a self-learning algorithm that looks at millions of different data points.
- To reward users for sharing their data for the purpose of medical research and health, fitness, aging and disease treatments, by granting them Longevity Tokens, which can be used to unlock additional premium services and products through the app.
- To curate, store and fund ground-breaking research in the fields of Longevity, healthy living and disease prevention, by incentivising the best scientists, research centres and medical institutions to join and collaborate within the Longevity United platform.
- To combine user data and research to create personalised health and fitness regimes, help predict or prevent onset of disease, and attempt to reserve the effects of the aging process.
- To advance scientific research in the fields of Longevity, geroscience, biomarkers, gerontology, anti-aging, and disease prevention, as well as the development of new drugs and treatments that leverage the benefits of enhanced data, and machine learning predictive analysis techniques.
- To advance the cause of precision health as a complement to an eventual replacement of precision medicine and leverage AI-driven machine learning predictive analytics.
- To work with global corporate partners - from SMEs to multinational corporations, insurance companies, and the health industry, who would be using either the Longevity United platform and app, or a white label version of the platform and app - to help them better serve the health and fitness requirements of their workforce and clients.
- To introduce a social element to the wider health fitness and Longevity industries, using incentives such as gamification, competitive elements, support networks and casual networking.
- To create personalised, targeted and data rich healthcare plans for every user of the Longevity United platform.
- To make the lives of 7.6 billion people on the planet longer, healthier and more meaningful.

2.4. HOW DOES LONGEVITY UNITED WORK?

Our solution involves a front-facing app, Eterly, that is capable of receiving information from any wearable fitness tracker device e.g. a Fitbit, or Apple Watch. The app communicates with users via an interactive AI-driven chatbot, and records and stores data received from both users and their tracker devices daily.
Behind the app, a blockchain based back-end, Longevity United, will receive inputed data from medical institutions, research centres, laboratories and centres of learning and combine it with the stored user data to produce personalised health plans, and make recommendations to users about how to live the healthiest lives possible based on their age, fitness, habits, and medical history.



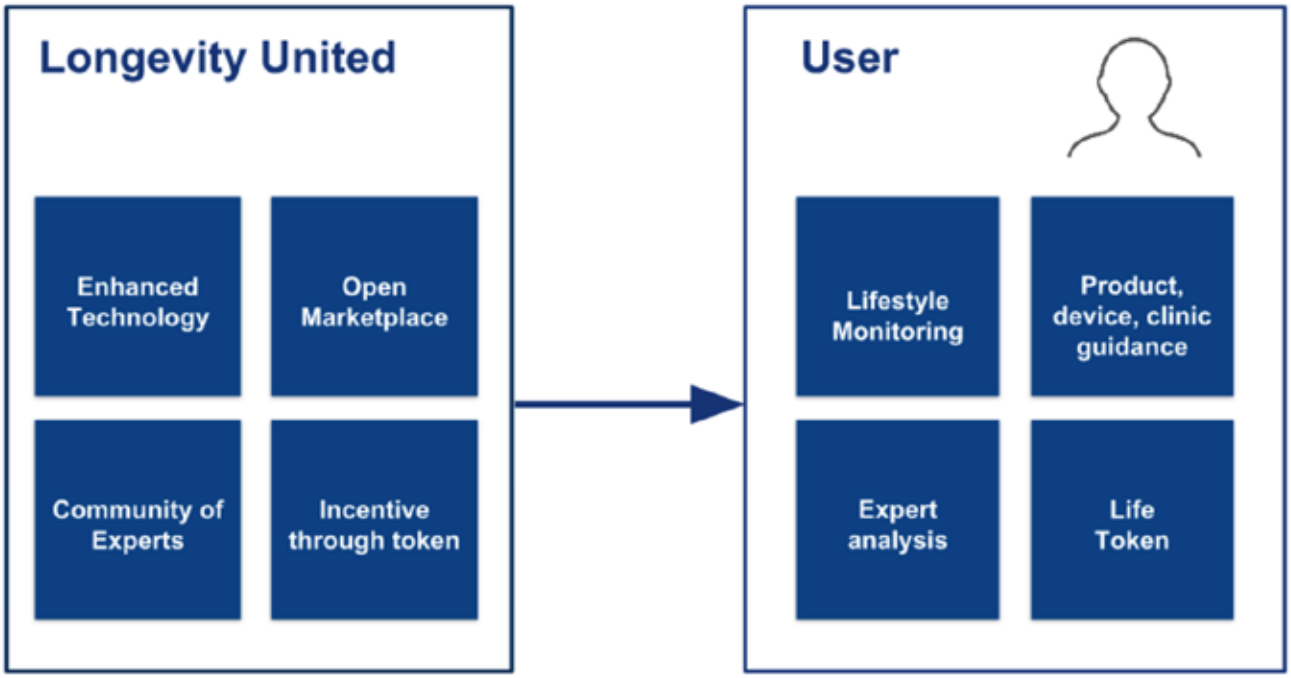
The app will also use the latest medical research into commercially available supplements and treatment drugs to recommend products that are likely to be of benefit to the user. Longevity United will host its own "Open Marketplace", where such products can be purchased, reviewed and rated by users, and professionals.

Longevity United will use the blockchain to introduce the concept of tokenization; " Longevity Tokens" ("LTY") will be issued to users for completing fitness plans successfully, and for sharing their data, to sponsor the work of scientists and researchers, and to bring investment into the platform from sponsors in exchange for tokens. Users will be able to exchange the LTY that they "mine" on premium services; exclusive fitness regimes, breakthrough products and treatments, and access to the latest medical research personalised to their specific needs.

Ultimately, we will see 4 distinct elements to the Longevity United platform emerge. A front facing app aimed at consumers; a blockchain back end aimed at R&D; Powerful machine learning to drive the entire ecosystem; and tokenization - used to create incentivisation across all aspects of the platform, and to provide an internal currency for an "open marketplace" where users can find curated, recommended treatments and products e.g. supplements, health foods, vitamins, lifestyle coaches etc.

3. LONGEVITY UNITED COMPONENT STRUCTURE

AS DESCRIBED IN THE INTRODUCTION TO THIS PAPER, THERE ARE ESSENTIALLY 4 KEY INTERRELATED ASPECTS OF LONGEVITY UNITED'S PROJECT:



3.1. MOBILE APPLICATION

A standalone, seamless and innovative easy-to-use mobile application and interface.

- User submits information
- User receives messages
- User sees personal metrics
- User uploads data via wearables

3.2. BLOCKCHAIN BACK END

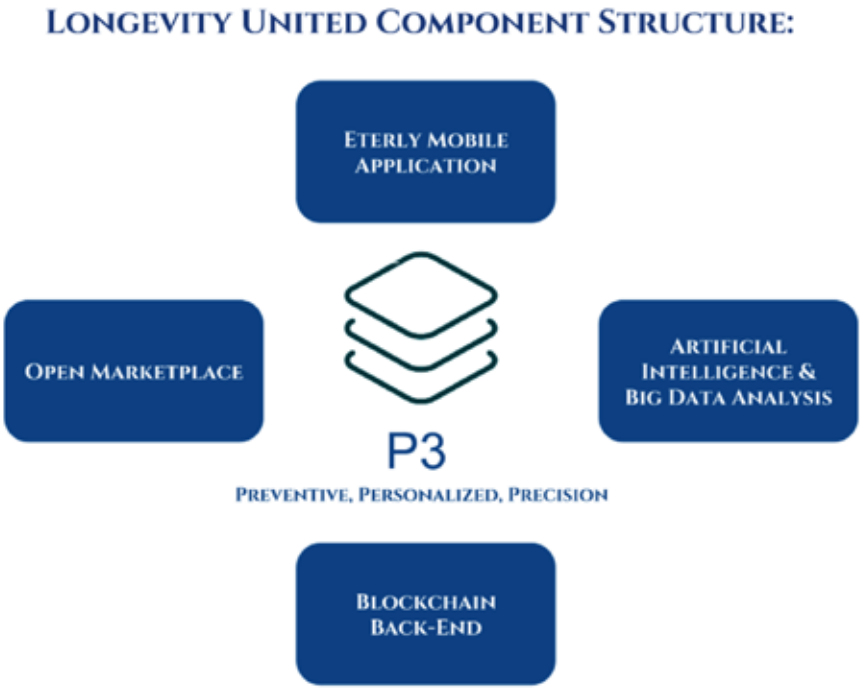
Where all personal and public information is stored and secured privately, in such a way as to ensure the user has full control over the use of their data.

- Stores user data privately and anonymously
- Stores research data submitted by scientists, research centres, medical institutions
- Records all ELT mined by users, scientists, investors, and others
- Records all transactions of ELT within the Longevity United ecosystem using ethereum smart contracts
- Stores user profiles, user data and permits sharing of data administered by ethereum smart contracts

3.3. ARTIFICIAL INTELLIGENCE & BIG DATA ANALYSIS

Continuous monitoring, assessment and analysis, including optimized recommendations, diagnosis, and prognostics through forecasting using artificial intelligence

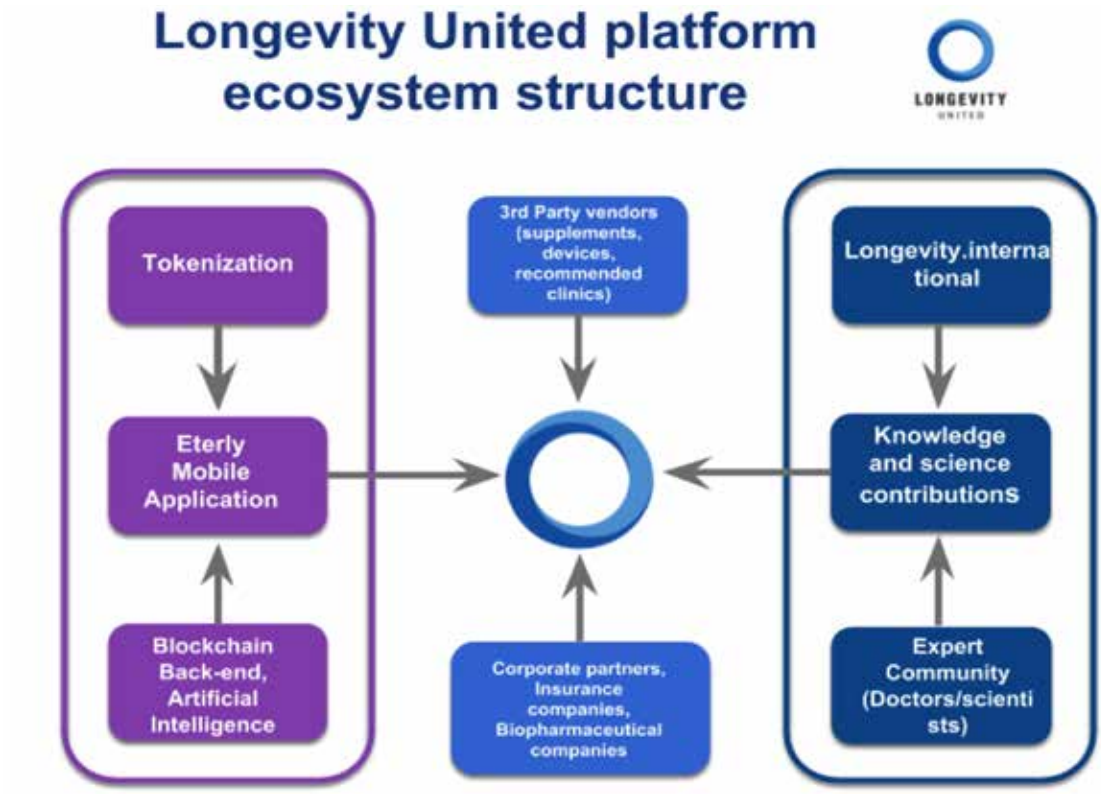
- Interprets stored data
- Intermingles research data with user health data where permission is granted
- Calculates Longevity score
- Powers the app's AI chatbot
- Designs personalised health and fitness programmes
- Enables personalized health monitoring and calculates the risk of illnesses and diseases



3.4. OPEN MARKETPLACE

A cutting edge marketplace providing recommended products, services, clinics, and doctors for a healthy life, life extension, and Longevity with an internal currency and tokenization.

- The Amazon of health treatment products
- Curated and reviewed by independent experts in fields of science, Longevity, health
- Wide variety of products including vitamins, supplements, health / fitness guides, medical advice, access to medical facilities, treatment drugs, accessories, clinics, doctors and medical institutions
- User can sell personal data to third parties
- A marketplace for health and Longevity algorithms. Developers and scientists can add specific health profiles and sell them via utility tokens in our marketplace. We offer mobile add on features marketplace for outside developers



4. THE ETERLY APPLICATION & LONGEVITY UNITED ECOSYSTEM

4.1. OVERVIEW

Eterly's AI-driven app is designed to be the ultimate Longevity personal trainer, understanding you on a deeply individual level and helping you fight disease and the aging process with dietary and exercise instructions, nutrition advice and groundbreaking medical studies and research. The app seamlessly interacts with wearable fitness trackers e.g. fitbits, smartwatches, step counters, heart rate monitors etc.
The app has been purpose built with the user in mind, and designed to be easy to use, intuitive, smart and proactive. The user will get to know the Eterly app, at its most basic level, through the 6 key functions that the app initially performs.

4.2. KEY FUNCTIONS

- **Daily Activity Analysis:** The app will request that the user inputs information about their health, lifestyle and daily routine into the Eterly app. As the user does so, the chatbot element of the app will begin suggesting changes that will help the user improve each aspect of their health and fitness lifestyle.
- **Food Control:** By tracking users' current eating and dietary habits, Eterly's life extension chatbot will reinforce the good choices you've made, as well as suggest changes to improve overall nutrition.
- **Nutrient Tracking:** The Eterly app will measure micronutrients intake as well, meaning users will be able to track their intake of vitamins and minerals to ensure they are getting a balanced diet.
- **Sleep Patterns:** Sleep is one of the most important aspects of overall health and many people simply aren't getting enough, whether quality or quantity. Eterly has access to technology that can assess sleep patterns and suggest improvements that can lead to deeper, more effective sleep - which in turn leads to much improved overall health.
- **Life Longevity Prediction:** The app will calculate a Longevity score for every user, and update it on a daily basis, at the same time offering suggestions to improve every aspect of their lifestyle – diet, fitness, supplements and others – helping them set forth on a path towards anti-aging.
- **Personalized Recommendations:** The Eterly app takes the information users submit about their health, lifestyle and daily routine in order to tailor a specific profile for each user, combining it with data from users' fitness trackers.

4.3. ASSESSMENTS, FEEDBACK AND RECOMMENDATIONS BASED ON CUTTING EDGE MEDICAL RESEARCH

Eterly's application is proactive. Based on the scientific data available to it, i.e. that which is submitted by scientists, research centres and medical facilities and stored on the blockchain, Eterly's AI will have the power to analyse the predisposition of a person to certain diseases, and give appropriate recommendations. Thus, factors which can lead to illnesses are excluded from a person's lifestyle recommendations and their biological processes regulated to better effect, according to the principles of biogerontology.
According to a recent report by the Center for Disease Control (CDC) [25], the 5 main reasons for mortality that exist in the USA are:

- Heart problems;
- Cancer;
- Chronic problems of the lower airways;
- Stroke;
- Incidental traumas.

Altogether, 63% of deaths in the United States are caused by complications related to one of the above conditions, which amounts to 900,000 lives a year. The CDC estimates that 20% to 40% of deaths from the above afflictions could have been prevented if the sufferer had lived a healthier lifestyle. For example:

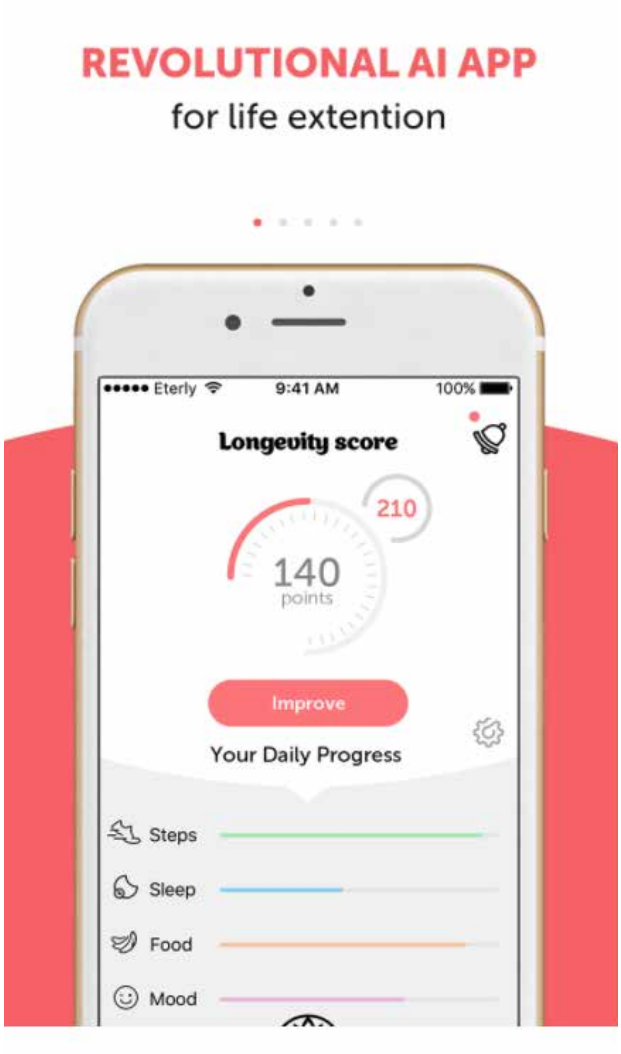
- Quitting smoking significantly reduces the risk of getting cancer and cardiovascular system diseases, chronic respiratory diseases and blood stroke;
- A healthy diet reduces the risk of getting cancer and cardiovascular system diseases.
- Maintaining a healthy weight will reduce the risk of heart disease, cancer, or a stroke.
- Physical activity (regular workouts, run, etc.) will significantly reduce the risks of heart diseases and stroke.

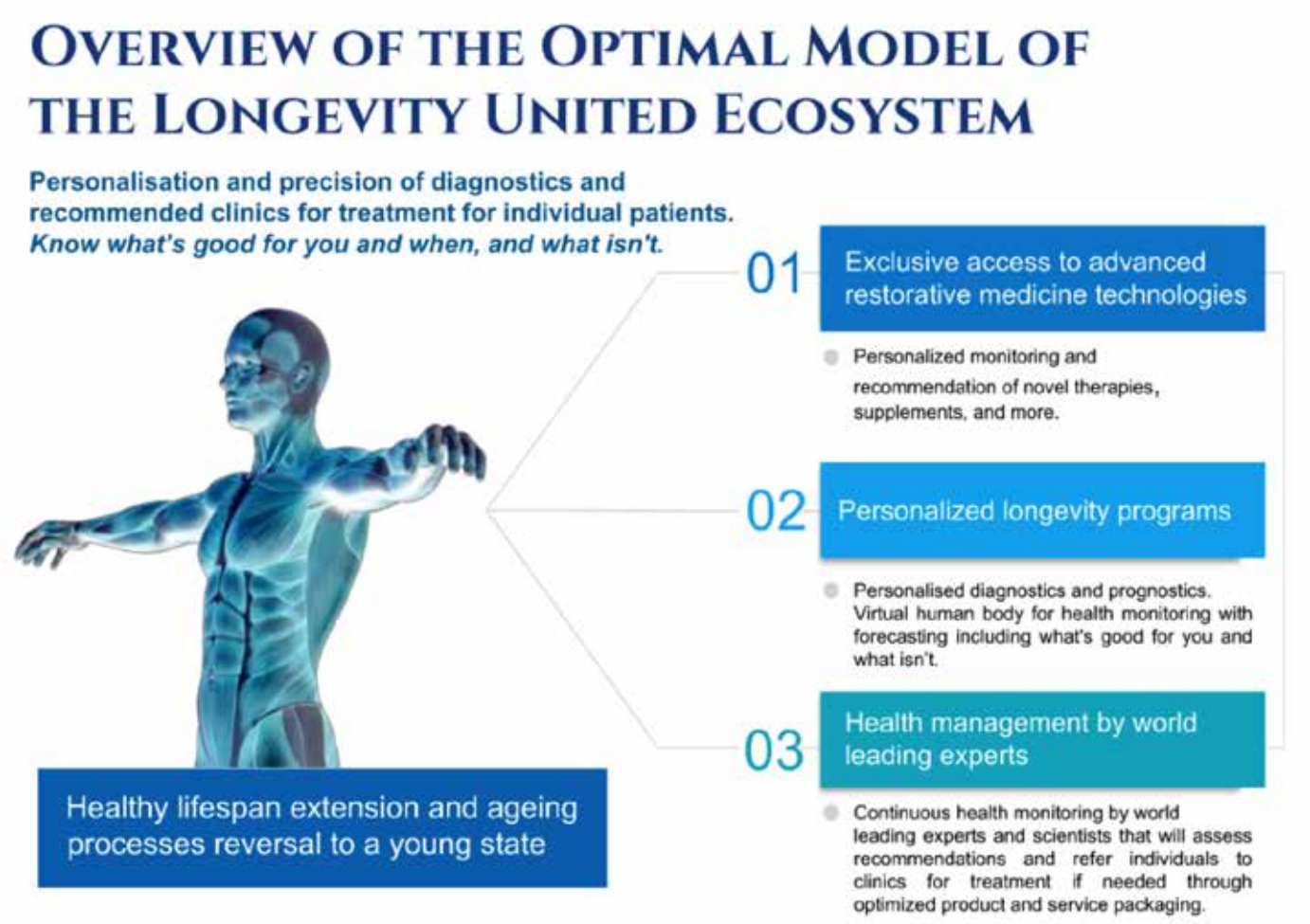
These observations are taken from just a few research papers out of millions of volumes of medical research. It's been said that a new scientific study is published every 30 seconds; taken together and analysed using powerful AI instead of the human eye, data can be processed, analysed for relevance, and finally used to provide a simple set of rules to follow in order to optimise health, including the possibility of naturally extending lifespan. This is the same principle that is behind systems such as IBM Watson, one of the world's most advanced AI-driven med-tech solutions, and other similar projects.
Longevity United will use a similar approach to give users not only general recommendations, but targeted solutions, based on the specific physical condition of each person. This significantly increases the efficiency of health improving and Longevity measures.

4.4. LONGEVITY SCORE

The Longevity Score is a central element of the platform and a main driver of users' daily interactions with Longevity United. The Longevity score is a gross rating that is assigned to new users after an initial health and fitness assessment based on the data they've submitted. The score is calculated using a proprietary algorithm, which is based on biomarkers of aging, and algorithmic machine learning techniques that focus on the users' performance, activity, and behavioural patterns. Biomarker technology is key to the evolution of the current healthcare system into what is known as P3 Medicine (The Ps stand for predictive, preventive and personalised). Each biomarker reflects a trait of an organism, such as blood pressure or the presence of a specific type of antibodies that can signal emerging diseases or other adverse processes.

While genetic tests can show the risk of acquiring a certain disease, they are static and do not reflect the state of the organism. But for P3 Medicine to work, continuous and real time monitoring of the patient is required. Classical biomarkers however are inadequate for the paradigm shift to P3 and many companies and non-profit institutions are currently racing to develop new and efficient biomarkers in response to the challenges present in the changing healthcare landscape. Additionally, the Longevity score will be closely tied to the Longevity Token (LTY). Users mine tokens by improving their Longevity score, and Eterly's fully automated personal trainer will offer users advice and guidance regarding boosting their Longevity score.
If the number of users that regularly submit data grows large enough, then we may end up with a dataset, which includes long-term data, that is larger than the dataset that had been used in the construction of biomarkers of age, and one in which the effects of behavioural and therapeutic interventions can be tested. While collecting data and creating datasets is not the central aim of Longevity United, we do believe that this process can prove to be extremely beneficial to the wider scientific community. We would in effect be creating the largest database ever to be used for testing biomarkers of aging and testing the long-term, dynamic effects of lifestyle and therapeutic interventions in relation to biological age.





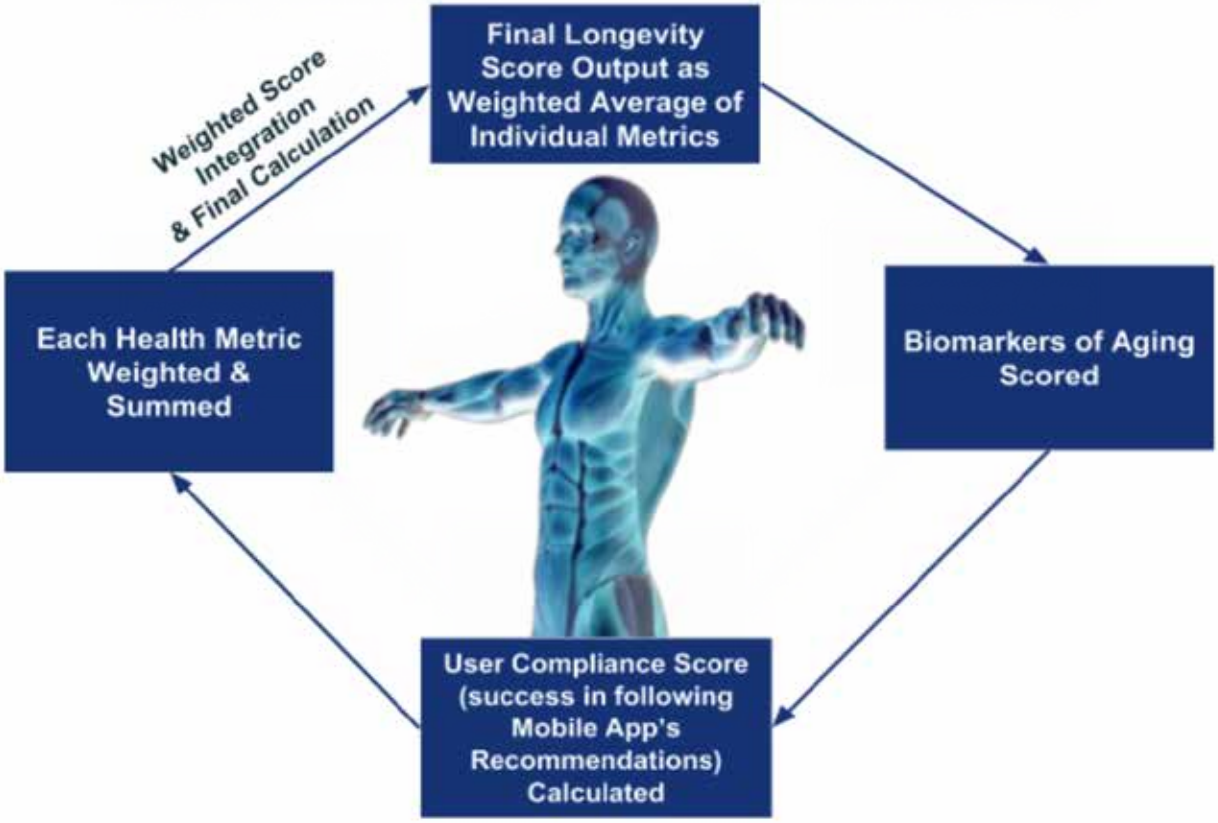
Additionally, the Longevity Score will serve as an aging clock, so to speak, capable of estimating the biological age of each user. Since it is possible, even likely, for people's biological and chronological ages to differ significantly, this metric will prove invaluable in providing a truly relevant and accurate picture of a user's health.

In calculating the biological age, different weights are assigned to the different health aspects that are tracked by the platform - e.g. exercise, diet, sleep, geroprotectors, etc - based on their impact on aging. The scores of the aspects are then integrated into a single weighted averaged, in accordance with their individual assigned weights or "importance ranks" to arrive at a single integrated measure. For each aspect in question, the weight is calibrated based on the statistical significance of their impact on biological age, as well as the sample size and duration of cohort studies demonstrating their impact.

Both biological age and health should be taken into account when weighing the impact of each aspect, such as exercise. The weight can be seen as the statistically significant average of the impact of each health parameter. It should be noted that many studies do not directly measure biological age; life expectancy or lifespan can be used as a proxy if required.

A weight is adjusted based on the **size of the study** in question and a **reproducibility metric.** This metric would increase with each additional study (above a desired size) that corroborates the results, or decrease if it contradicts them.

Longevity Score: Comprehensive Calculation of Biological Age



Weighted Sum of Individual Health Metrics

User scores in a variety of distinct health parameters are recorded, tracked, and given a distinct weighting in proportion to how much they affect overall health and biological age. These distinct parameters are then summed in accordance with their weightings to yield a final integrated metric that represents their current biological age and overall health status.

Users longevity score is tracked over time to:

- Determine if their biological age is lower or higher than their chronological age;
- Estimate whether they are successfully slowing the progression of biological aging, or reversing it over time
- Test and track the effect of different behavioural interventions (e.g. diet, exercise, sleep) and therapeutic interventions (e.g. supplements, geroprotectors, etc.) are having on their biological age, to create personalized geroprotective regimens tailored to each individual patient over time via statistical significance tracking and machine learning

In addition to the **importance factor** In addition to the **importance factor** - i.e. the collection of weighted factors - an additional metric will be used in Longevity United: a **compliance factor**. The compliance factor refers to a user's **track record** in fulfilling the recommendations put forward by the app, e.g. a minimum running distance. Put together, those factors will produce a user's **final Longevity Score.** Users can also manually input certain additional biomarker data if it becomes available to them, e.g. blood test results, and their Longevity Score will take that into account.
Therefore, the impacts of lifestyle, diet, and medical interventions on the **biological age** of each specific user will be testable and trackable to highly **personalised** degree, which makes its recommendations very accurate and effective for both health and biological age.

4.5. PUTTING USERS IN CONTROL OF THEIR OWN DATA

Longevity United seeks to relinquish control of healthcare data from third parties, and deliver it back into the hands of users. Eterly's mobile app will use the blockchain back-end developed by Longevity United to securely and transparently store user data in an anonymous fashion.

The only user health data that will be made accessible to third parties will be data from users who have explicitly consented for it to be used by third parties, and those users will be remunerated for their release of their data with Longevity Tokens, which will give them access to premium services and features of the Eterly mobile app, as well as the platform, ecosystem and marketplace developed by Longevity United.

This creates a win-win scenario for both users and the third-parties desiring such datasets, by compensating users for the use of their data while simultabnouelsy promoting the curation of larger health datasets than could otherwise be created, due to users actually having an incentive to contribute their data to such databases.

Healthcare data has been used by third parties without the consent of or compensation to the originators of that data for far too long, and both Eterly and Longevity United are committed to restoring that balance, and to finally put health data back into the hands of the users who originate it.

5. Longevity United Tokens ("LTY")

LTY tokens will be rewarded through **data mining**. By awarding these tokens, users will be incentivised to carry out as much activity as possible. The resulting data will be mined and subjected to big data analysis in order to optimise recommendations issued via the app. This will also apply to recommendations given to users by scientists and doctors in the ecosystem.
Longevity United Tokens will play a critical role in maintaining the self-contained ecosystem, in the following ways:

- **Users:** will be awarded tokens for successful and regular data input, and for successful healthy living i.e. completing recommended fitness or wellness programs. Users will also be able to mine tokens for sharing their data with third parties
- **Grants:** Tokens will be used to award grants to medical institutions and research centres for supplying data and the latest medical innovations to the platform, and for referrals of products and services, paid for with tokens.
- **Doctors / Scientists:** may earn tokens for research into ageing biomarkers and potential treatment methods, doctor / scientist consultations with users on recommendations to further train AI, and for overall contributions to the knowledge pool.
- **Investors;** will invest in tokens to pay for developers work, fund scientists or make other contributions to the development and enrichment of the platform, or to pay for products and/or services

The tokens "mined" in these various ways may be used to complete in app purchases for premium services or within the open marketplace, on healthy living products and services. They may also be traded outside the platform and be converted into other crypto, or fiat currencies.

5.1. HOW USERS CAN EARN (MINE) SMALL AMOUNTS OF LONGEVITY TOKENS

It is Longevity United's intention to issue small amounts of tokens each day, to reward users for completing designated activities. The range of these activities will evolve step-by-step as the platform and project achieves its goals and ticks off key milestones.

The kinds of tasks that will result in the granting of tokens will include major fitness activities, and healthy lifestyle activities e.g. active running, fitness, and time spent at the gym during the course of days, weeks or months.

5.2. OPPORTUNITY TO EARN LARGER AMOUNTS OF TOKENS

Larger volumes of coins could be mined in the event that users are able to provide Longevity United with tangible patterns of healthy lifestyle data, i.e. not only following Longevity United recommendations but also providing Longevity United with personalized medicine and health data.

5.3. REWARDS FOR SUPPLYING DATA TO PLATFORM

Besides tokens the Longevity United project will provide users supplying critical data to its platform with recommendations guided by doctors and geroscientists, evaluated using anonymised data from thousands, to hundreds of thousands of users, in a sense conducting something similar to clinical trials, except not for disease treatment but rather disease identification and prevention.

Longevity United will evaluate whether the recommendations of credible doctors are applicable for large numbers of users, and evaluate whether their aging and health biomarkers have improved. The users who will be able to achieve the best improvement will be granted the most tokens (above those users who show that they can preserve their existing health and aging biomarkers, and users who will be not able to show any improvement or preservation of biomarkers).

Active users will be able to earn tokens, or obtain discounts for products offered within Longevity United's ecosystem. Users who are inactive and unable to show improvement will still have access to the ecosystem but will have to make do with less tokens. Those users able to provide the platform with the most valuable data, and improve their biomarkers the most, will be promoted to become called role models, and will be the beacons used to validate processes, from a practical perspective.

5.4. BREAKDOWN OF SUGGESTED LONGEVITY TOKEN ALLOCATION PER ACTIVITY

In this section we provide a preliminary list of 12 standard use cases for which users will be awarded Longevity Tokens; however, this list and the number of such activities will naturally grow in accordance with the evolution of Longevity United's platform, ecosystem and user-base. This list is not meant to be exhaustive, but to introduce the reader to a selection of the first activity-based use cases as a preview of what is to come later.

By engaging in regular Longevity United activities users will be be rewarded with points, and when they reach 1000 points they will be able to convert these points to Longevity Tokens. Each point will be approximately equivalent to 1 cent USD, such that 1000 points = $10. The exact list of activities and the amount of Longevity Tokens will be a subject of further research and development, and a decision to be settled on by Longevity United's Scientific Advisory Board, and a matter that is constantly evolving and adjusting to the dynamic of growth of Longevity United's user base and community. We expect the number of activities to grow into the dozens or even hundreds, and the value of points awarded for each activity will adjust in accordance with the evolution of Longevity United's platform, ecosystem and user base.

1. Subscription to the app - providing basic initial data including age, sex, weight, photo, ethnicity, geographical data, etc. - 1000 points.

2. Occasional use of app - from time to time, user provides minor information to Eterly app, consisting of at least 4 times per month. Award of 1000 points per month.

3. User provides detailed sleep pattern data - user agrees to record and provide all of their sleep related data on a daily basis. Award of 5,000 points per month.

4. Basic fitness activities and recording healthy food intake regularly - user keeps track of their physical fitness activities via the app, and user keeps track of their food intake via the app at least 10 times per month. Award of 10,000 points per month.

5. User volunteers psychological data i.e. mood, well-being - user agrees to complete simple in-app surveys related to psychological well-being and mood once per week. Award of 5,000 points.

6. User completes IQ / EQ test - user agrees to undergo comprehensive tests of their mental faculties and cognitive functions so as to measure how Longevity United's recommendations impact upon their cognitive performance, once every 3 months. Award of 20,000 points.

7. Private sharing of personal health data / medical history - user uploads previous historic medical data to app. Award of 30,000 points.

8. Regular diagnostic check ups by user - user provides data from medical checkups in a secure and anonymized mode to the app twice per year, including blood and urine tests. Award of 30,000 points.

9. Sharing health data after completing a specific treatment or health programme - user embarks on fitness regimes or treatments of specific importance to medical industry and uploads real time data. Award of 7,500 points.

10. User uploads rare, valuable data - e.g. close ups of eyes, skin, wrinkles, and other features impacted by aging, stored in a secure and anonymized fashion. Award of 5,000 points.

11. Genome, epigenome transcriptome data and MRI scans - user supplies rare and usually unobtainable data to app of particular interest to science and medical community. Award of 100,000 points.

12. Public disclosure of profile and real-time access to personal health and biomarker activity Digital Avatar - users grant Longevity United access to appoint user as a role model for other users to emulate due to user's high discipline in following Longevity United's recommendations and showing practical results in slowing or reversing their biological age and the dynamic changes of their biomarkers, as measured by the Longevity Score. Award of 300,000 points.

5.5. BEYOND PRECISION MEDICINE. THE EFFECT OF APPLYING PRECISION HEALTH

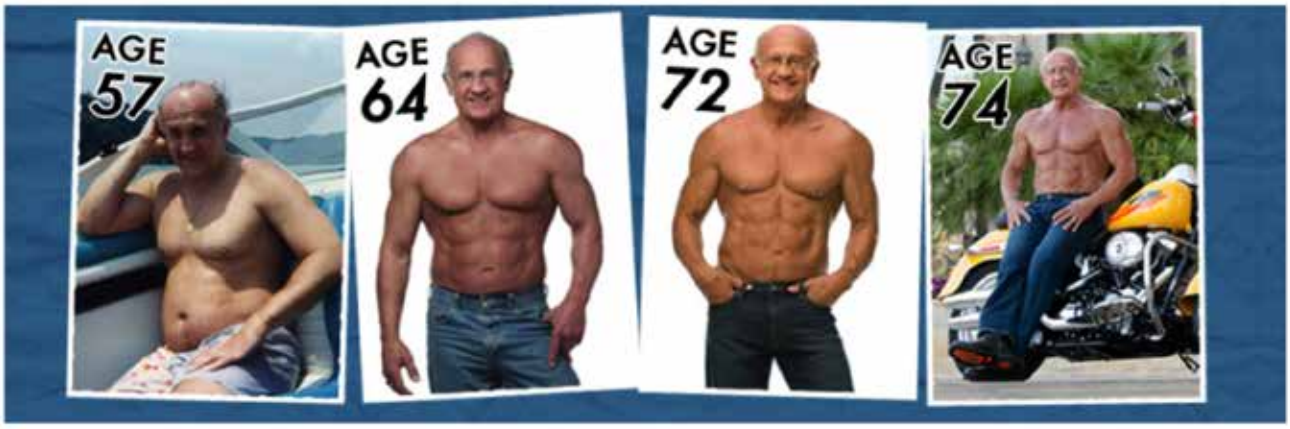
In a recent article in Forbes, Lloyd Minor M.D. dean of Stanford medicine writes: instead of a frantic race to cure disease after the fact, we can increasingly focus on preventing disease before it strikes." This is the essence of Precision Health as opposed to Precision Medicine, and it is now a very real industry and discipline. [24]

In order for Precision Health to work, it is imperative that we obtain what Minor refers to as "rich, nuanced" data, i.e. not the kind of mass data that can be bought from doctors surgeries by bio-pharma conglomerates, but intimate, personal data supplied voluntarily by the patients themselves. We will also wish to have maximum diversity (many ethnicities, ages etc), as this will equip us with very useful and informative data.

5.6. HEALTH AS AN ASSET "BECOME AN ASSET MANAGER OF YOUR OWN HEALTH"

We wish the Longevity United platform to be a safe, secure and private place where users can voluntarily upload their personal health, fitness and historical medical data, but we understand that users may reluctant to do so at first. To counteract this problem, we have introduced techniques such as gamification and incentivisation, described below.

THE EXAMPLE OF JEFFRY LIFE



"Today at 78 years of age I am in the best shape of my life. I am in the gym 5 days a week. I have a thriving practice in Charleston, West Virginia (The Life Center for Healthy Aging), and I have authored three books: The Life Plan, Mastering the Life Plan and The Life Plan Diet. *At the end of 2012 Men's Fitness Magazine selected me and 24 others as the top 25 fittest men of the year.* The other 24 honorees were men in their 20's and 30's and most were professional athletes or actors. The program works, I am living my dream, and there is no end in sight. It just keeps getting better.

It would have never happened if I had not made the decision to live a healthier life. While your life may not take the same path as mine, it most certainly can be more productive, happier, and healthier for longer if you start taking care of it now. *It is never too late, nor too early, to start living a healthy and fit lifestyle.*"

Dr. Life

[17] Source: drlife.com

We would like our users to view themselves as "asset managers of their own health", i.e. to consider the health of their bodies in the way a successful hedge fund manager might consider the health of their portfolios. To continue the analogy; it is in a hedge fund manager's interest to continually make small adjustments to their portfolio, trying to find ways to optimise performance. Likewise, we can all achieve higher levels of fitness and better levels of health by continually optimising all aspects of our daily routines, or by visiting a doctor more regularly, or increasing the number of sessions we do with our personal trainer, or by trying different diets, or vitamin supplements.

Naturally, as with the fund managers, there will be top performers, average performers, and lesser performers.

Top performers; these will be top-tier users of the app and platform. These users will update the app with comprehensive data in real time, review it and look to use it to optimise their health at all times, leveraging the benefits of Longevity United's platform i.e. health programs, dietary recommendations, products available in the "Open Marketplace", research supplied by medical and scientific institutions. We would anticipate that top-tier users are likely to be highly competitive individuals, constantly striving to be the best they can be, and leaving no stone unturned in their quest for better health and Longevity prospects. In "hedge fund" terms, these are the trillion-dollar fund managers, and they are compensated the best - in the case of Longevity United, with the largest awards of L-tokens.

Mid-level performers; mid level performers have satisfactory levels of health but are not likely to be as preoccupied with their levels of health or committed to using Longevity United's platform as top-tier users. This does not mean that do not find the platform useful - quite the opposite, in fact. Mid-level users will likely upload data to the platform on a regular basis, mining tokens in the process, which they likely use in the open marketplace and enthusiastically pursue different health and fitness plans, consult research papers, and use the app's AI chatbot regularly. Mid level users are also likely to be attracted by the competitive element of the platform, competing against friends or family, and comparing notes on number of token won, or products tried.

Lower level performers;lower-tier performers are casual users of the platform, or users who are interested in a small number of core services. Lower-tier users are less likely to be incentivised by the opportunities that the Longevity United platform offers, but at the same time, will be enticed to share their data with the platform in the interests of achieving better levels of health. Lower-tier users may, however, become more incentivised by and attracted to the platform as they learn more about its aims, and the benefits that it can bring.

The Benefits for Top and mid-level performers

Top performers can expect, in exchange for their work following the platforms instructions and sharing their data with it, world class medical assistance and treatments. Through the work that they do, and the token they mine, top-tier users will unlock best-in-class healthcare, learn about the latest medical techniques before anybody else, and get access to the best health programs, treatment centres and medical staff.

Mid level performers will not unlock quite the same levels of access, but they will feel part of a mutually beneficial relationship with the platform, and will benefit from levels of health care that are superior to most people's. The example of the top tier performers will spur them on to greater efforts and achievements, and they will feel part of a movement whose benefits are tangible and can help to improve their standards of living.

6. HOW ETERLY OPTIMISES USERS' HEALTH

6.1. DATA CAPTURE

One of Eterly's greatest strengths is its ability to collect, store and interpret data, as we have described above. The more data that a user submits to the platform, the better the diagnostics and recommendations that the AI can make. The app makes it as easy as possible to submit data; either through a connected wearable device that can be set up to communicate directly with Eterly, or directly via in-app user input. Thanks to its intelligent chatbot, the app can be programmed to prompt users for information, reminding them to share data about what they had for lunch, for example, or how many hours sleep they got the previous night, or how much physical activity they have done that day.
Precision medicine necessitates that patients and healthy people participate in partnership with clinicians and researchers.

Central to this process is the technology used to monitor and provide relevant health-related data about individuals: Devices and instruments that capture physiological data. These technologies include a rapidly expanding array of consumer products and wearables, as well as complex clinical care platforms in academic medical centers.

For patients, this might mean collecting data with an FDA-approved mobile device or app, such as a continuous glucose monitor or a mobile heart monitor app.

Such data can provide a practitioner immediate information about a patient, and when collected from large numbers of people, can reveal patterns and trends that are clinically useful.

6.2. DATA OWNERSHIP

As stated previously, data plays a central, perhaps the most crucial role in Eterly, allowing the platform to make precise recommendations for its users, giving doctors and physicians better information about their patients, and opening the door to further discoveries related to health. Eterly will collect user data in several ways using wearable technology, from digital health records, to directly via in-app user input.
Working with data should follow four main principles: security, clarity, consent and ownership. Eterly will ensure that these tenets are fully respected. All data collection and processing will be done with full awareness and after the explicit approval of the user. Secondly, the platform uses blockchain technology to store the data it collects, ensuring transparency and security, as well as allowing the user to be in full control of their personal data. Finally, users will be compensated for sharing their data: in addition to enabling an overall healthier lifestyle, the platform will issue tokens in return for the data contribution of users.
Eterly is committed to ensuring that users own their data at all times, that their data will not be used without their consent, and that they be compensated for the use of their data.

6.3. FUNCTIONS

This depth of data capture allows Longevity United to carry out the following tasks

Deep Diagnostics

- Big data analysis of habits and lifestyle assessments
- Non-invasive continuous monitoring
- Total lifestyle evaluation

Advanced Prognostics

- Virtual human prognostics
- Backed and carried out using science supported by a community of scientists

Personalised P3 Programs

- Intelligent personal offerings
- In application gamification

Preventative P3 recommendations

- Open marketplace for products and treatments
- Personalised offerings
- Optimised products
- Preventative approaches

6.4. TEST, PREDICT, TREAT

Longevity United's aim is to become the world's most advanced personalised medicine recommendation system.

Test

Users can complete comprehensive lifestyle and medical health surveys whilst retaining complete control over what data may be used by Longevity United, whilst retaining the option to anonymise their data and to share it with carefully vetted and selected third parties.

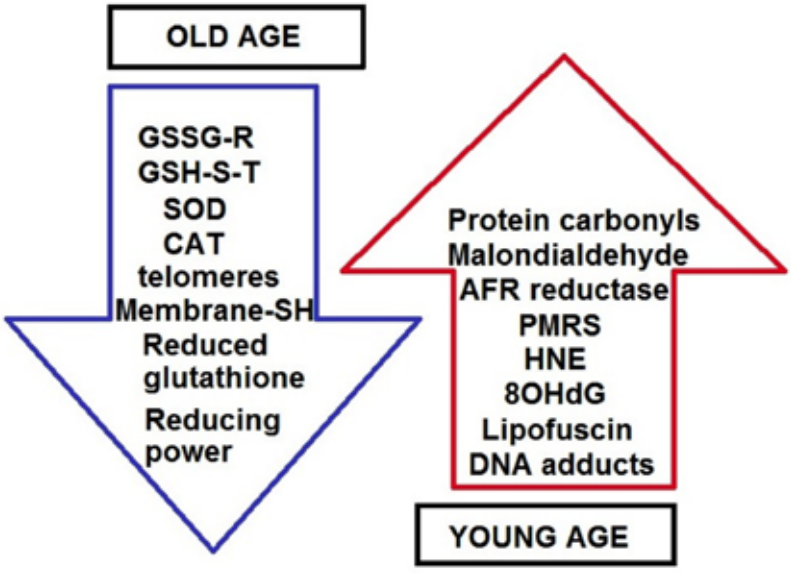
Predict

Results are processed through the stored reserves of medical research and potential issues flagged.

Treat

Personalised treatments are planned, and recommendations of clinics and treatments made.

6.5. BIOMARKERS



Accurate biomarkers allow researchers and clinicians to measure the impact of a healthspan-extending intervention according to the changes it produces in a user's biomarkers of age, rather than conducting decades-long clinical trials in which the effects of actual lifespan in real time are the main criterion for evaluation success.

Future tracking of biomarkers of age via linked wearables and manual user input could provide Eterly with a robust means of both estimating users' biological age, and tracking the effects of interventions, diet and lifestyle changes on their biological age

What is a 'Biomarker of Aging'?

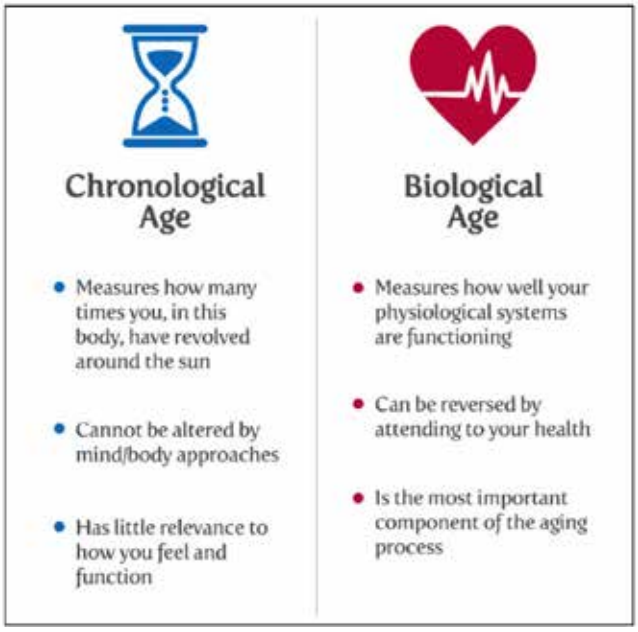
A biomarker is an indicator used to measure the state of a biological condition or process.

It is not however sufficient to use chronological age as an indicator of functional decline and is not a good way to ascertain an individual's risk factor for various age-related diseases. Aging is an especially multifarious degenerative condition. Everyone ages differently and at different rates. Whilst everyone ages due to the same processes, the speed at which these different processes occur can vary between individuals. [23]

Whilst individual biomarkers are good for measuring certain aspects of aging in a very focused way, and indeed they are useful in this capacity, they do not give an overall picture of how someone is aging and where to focus preventative efforts.

Assessing progress and success therefore requires a diverse range of scientifically validated biomarkers to serve as a metric for "biological age".

This would allow for testing interventions to extend lifespan, because changes in the biomarkers would be observable throughout the lifespan of the organism.

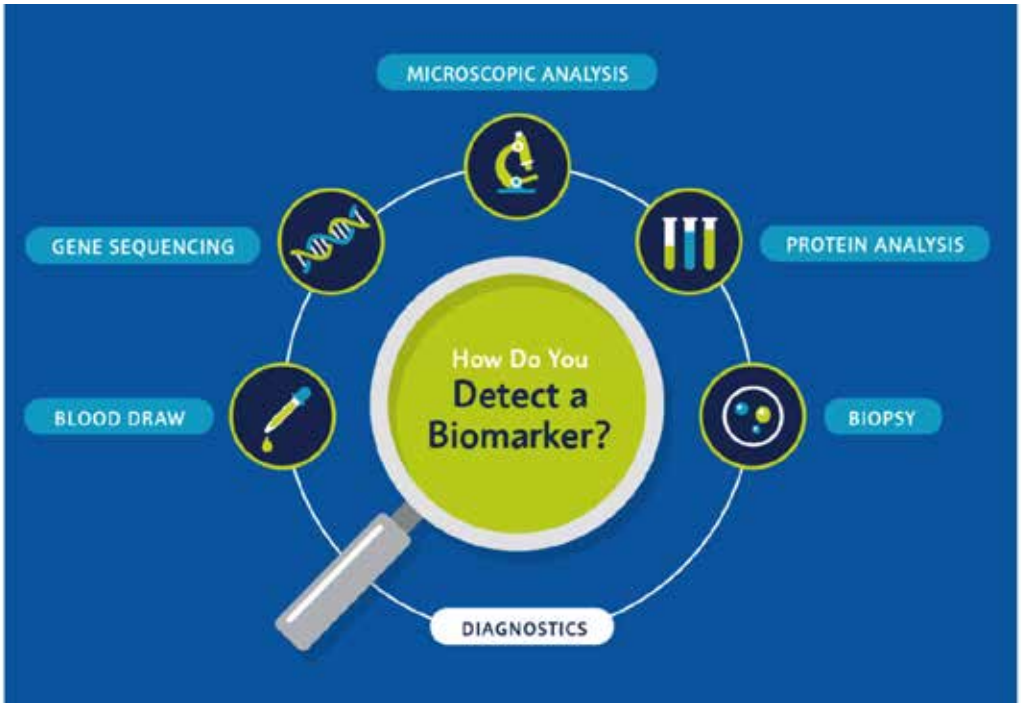


In order to be prove useful, biomarkers of aging should::

Be reproducibly measurable during a short interval compared to the lifespan of the organism.

Assay the biological process of ageing and not a predisposition to disease

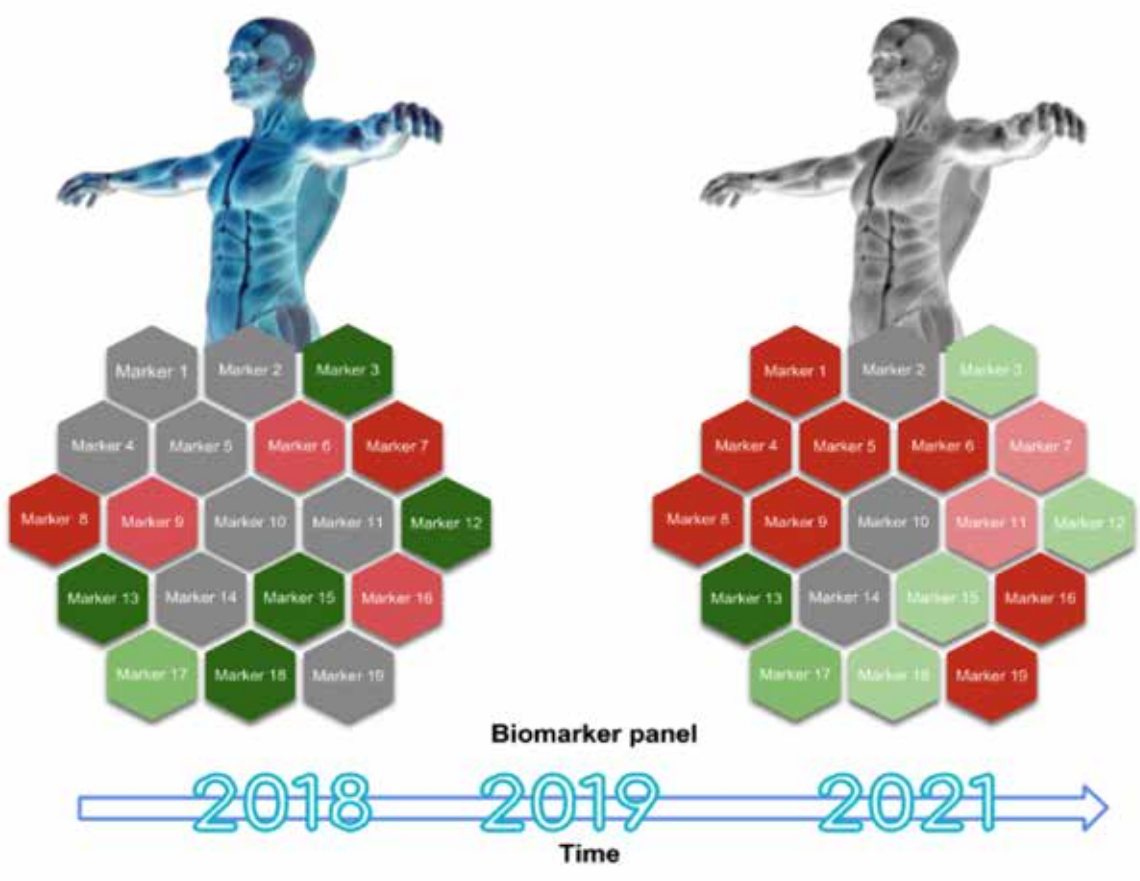
Cause minimal trauma to assay in the organism



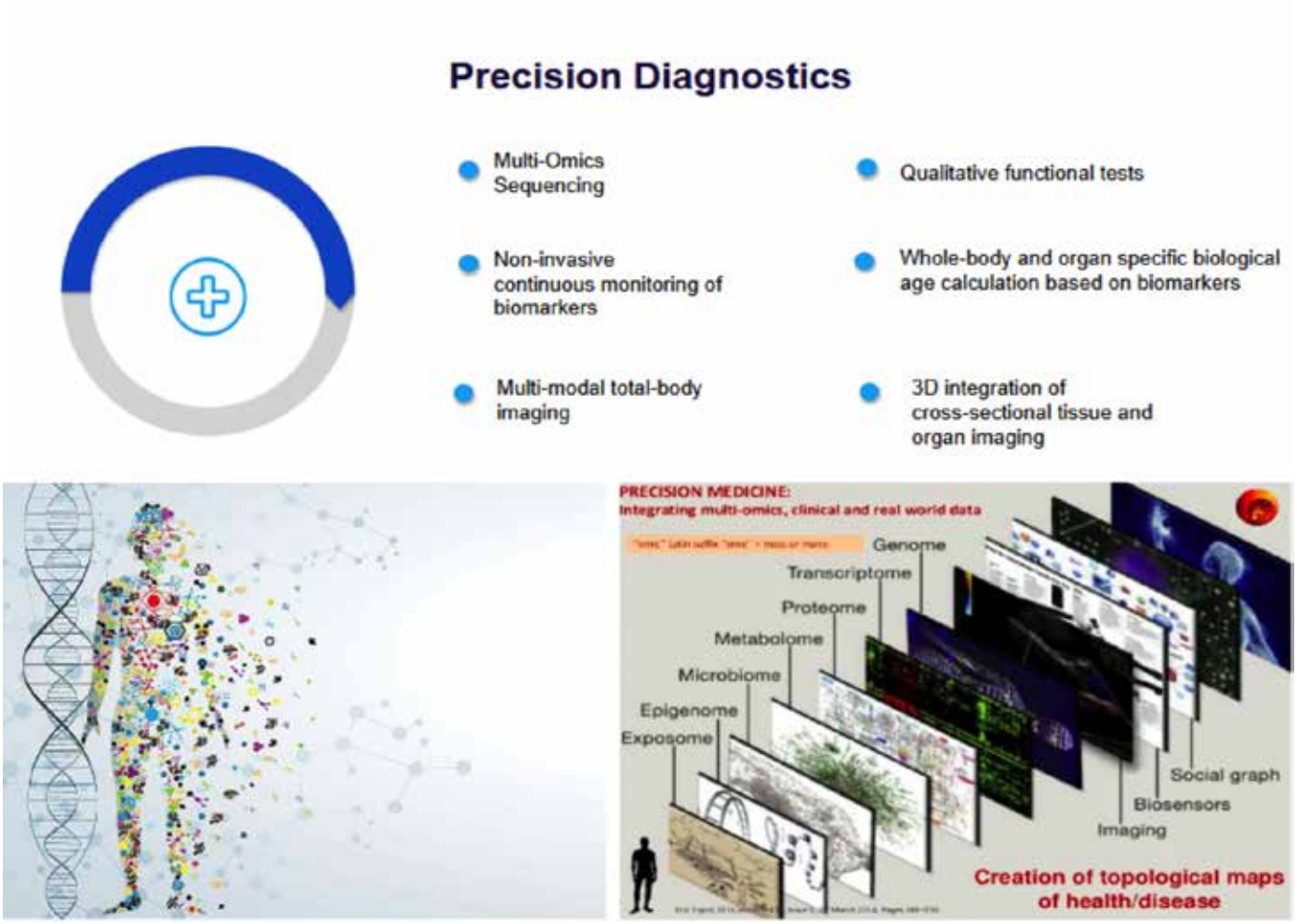
Source: https://www.phrma.org/fact-sheet/biomarkers-and-surrogate-endpoints

Source: https://www.fda.gov/ucm/groups/fdagov-public/documents/image/ucm535924.jpg

DIAGNOSTICS PANEL FOR DIGITAL AVATAR



LONGEVITY UNITED



How Adequate are Current Biomarkers of Aging?

The ongoing paradigm shift away from treatment and toward prevention has left us with a set of obsolete biomarkers.

The problem is that a biomarker of aging is more than simply a sign of aging.

Graying hair, for example, increases with age, but graying hair cannot be called a biomarker of ageing, as premature greying does not correlate closely with premature functional decline. Indeed neither greying hair, skin wrinkles, nor chronological age are reliable indicators of functional decline in other respects. [27]

This problem has dogged biogerontology for decades as it persists to some degree throughout a great many facets of aging, making any concrete measure of progress impossible. Until recently that is. The nearest biogerontologists have got to consolidating the diverse aspects of aging into a single variable has been the use of levels of CD4 and CD8 memory T cells and naive T cells to give predict the lifespans of middle-aged mice.

Advances in computing power, however, and capacity for big data analysis have accelerated this search and unmasked three facets of the aging process to serve as biomarkers, in that advancement correlate like clockwork to both certain facets of functional decline and chronological age, and as such three "aging clocks" to be developed:

- **The epigenetic clock** a form of a molecular age estimation method based on DNA methylation levels
- **Basic blood biochemistry and cell counts**
- **Transcriptomic aging clocks** estimating biological age based on the transcriptome; this is more revealing than the genome as it reflects actual gene expression in real time

Measurement of telomeres was previously a popular biomarker of aging, but it had limited use and there have been studies arguing that it is not aging biomarker in the strict sense.

The race is now on to develop new and reliable aging biomarkers to face the challenges presented by the new approach to biomedicine.

Criteria for Effective Biomarkers of Aging

The American Federation for Aging Research (AFAR) proposed that for biomarkers of ageing to be valid:

- They must predict the rate of aging. They should be able to tell exactly where a person is in their total lifespan and it must be a better predictor of lifespan than chronological age.
- They must monitor basic processes that underlie the aging process, not the effects of disease.
- They must be able to be tested repeatedly without harming the person. For example, a blood test or an imaging technique.
- They must work in humans and in laboratory animals, such as mice, so that it can be tested on laboratory animals before being validated in humans.

Biomarkers fulfilling all of the above AFAR criteria are unlikely to exist. Several candidate biomarkers of ageing have emerged in the past few decades but none has proved universally suitable for, or robust in, measuring or predicting the degree of ageing at either the population or individual levels.

A Systems Analysis Approach to Aging Biomarkers

In order to get the bigger picture, we need to move beyond this simple approach to a systems analysis approach that examines multiple biomarkers at once.

A number of approaches to this issue have been proposed and even tested. Arguably one of the most well-known methods for ascertaining biological age is the DNA methylation clock developed by Horvath, it can in many ways be considered the gold standard for aging biomarkers.

Approaches that consider multiple biomarkers have also been proposed; such systems evaluate a number of biomarkers to give a 'score' as an overall indication of aging rate. More recently a package of 19 biomarkers has been suggested as another approach to evaluating age.

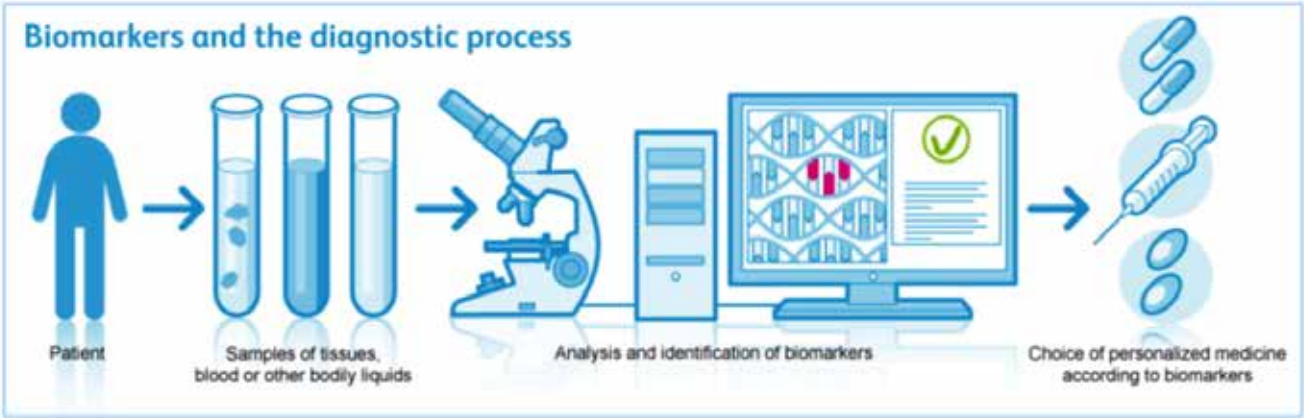
There are numerous similar proposals in literature to evaluate aging using a wider set of biomarkers, and one does not have to search far to find them.

There is an urgent need to not only develop more accurate biomarkers, but also to package them into a systems analysis approach. This would allow researchers developing drugs and therapies that target the aging processes to ascertain efficacy to a much greater degree. It could also allow better monitoring of an individual's health state and allow physicians to identify and address areas of concern to a far greater degree of accuracy.

The development of better biomarkers and systems capable of packaging them into compact solutions is very important to aging research. The rising popularity of health wearables and other personal health monitoring equipment also has the potential to allow the average person to take more control over their health too.

Such approaches could be combined with other functional aging tests such as the H-Scan or the updated version being developed as part of a fundraising project at Lifespan.io.

The development of biomarkers and systems that deliver them efficiently and at an affordable cost should therefore be a high priority.

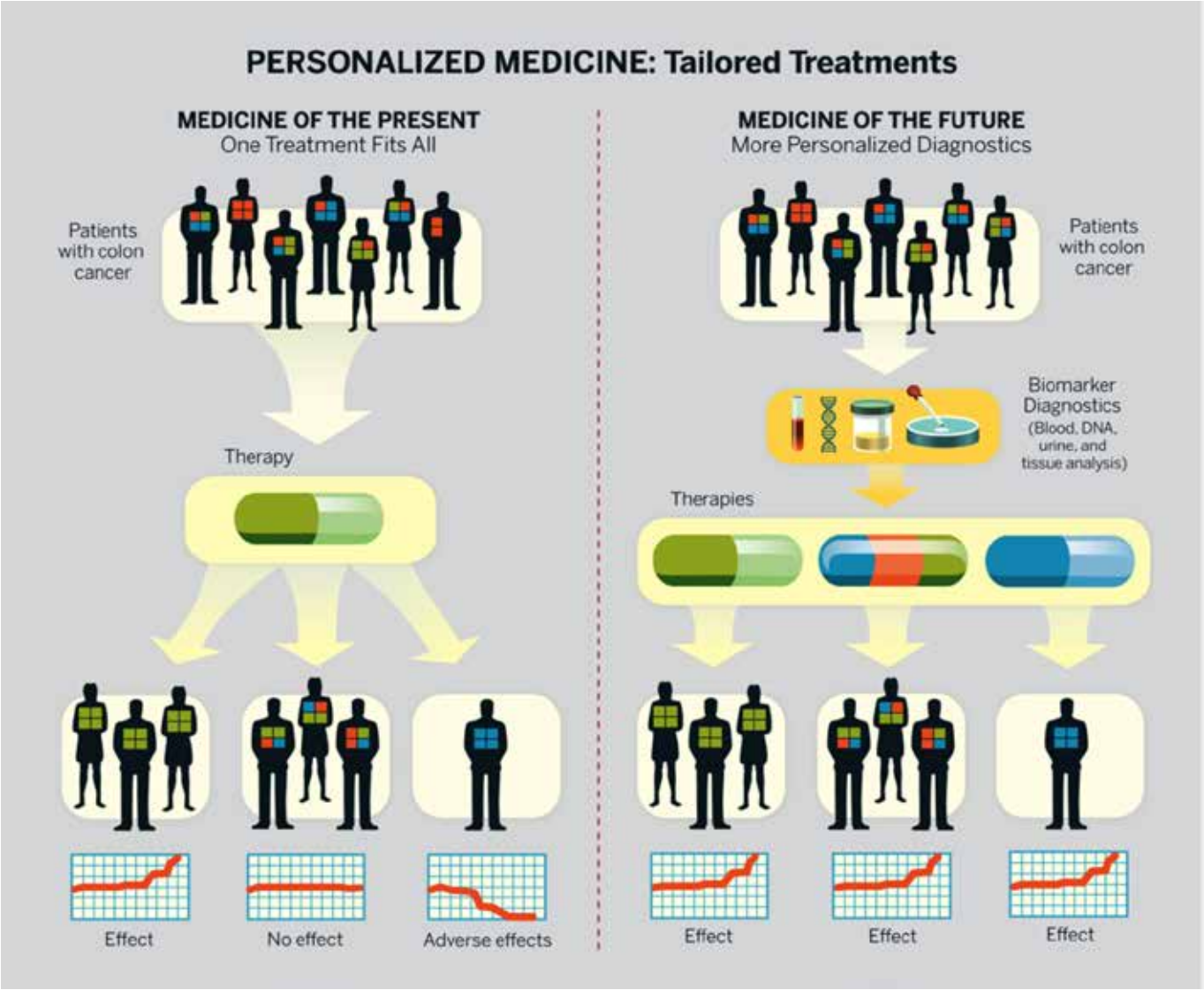


6.6. P3 (PRECISION, PREVENTIVE & PERSONALISED) MEDICINE

P3 medicine is a different kind of concept to the world of medicine that we know today. While the current status is marked by increasing healthcare costs, the promise of P3 is that it could lead to better health for consumers and an industry that is more efficient financially.

- Take personal traits of the patient into the consideration
- Predict diseases before they do any substantial damage
- Prevent diseases when possible, rather than to treat them

The P3 market is expected to develop significantly over the course of the next 10 years. This is because the successful implementation of P3 Medicine represents a complex structural change for the healthcare industry that relies heavily upon other emerging technologies that are also expected to be fully developed over the next decade.


PERSONALIZED MEDICINE: Tailored Treatments
MEDICINE OF THE PRESENT
One Treatment Fits All
Patients with colon cancer
Therapy
Effect
No effect
Adverse effects
MEDICINE OF THE FUTURE
More Personalized Diagnostics
Patients with colon cancer
Biomarker Diagnostics
(Blood, DNA, urine, and tissue analysis)
Therapies
Effect
Effect
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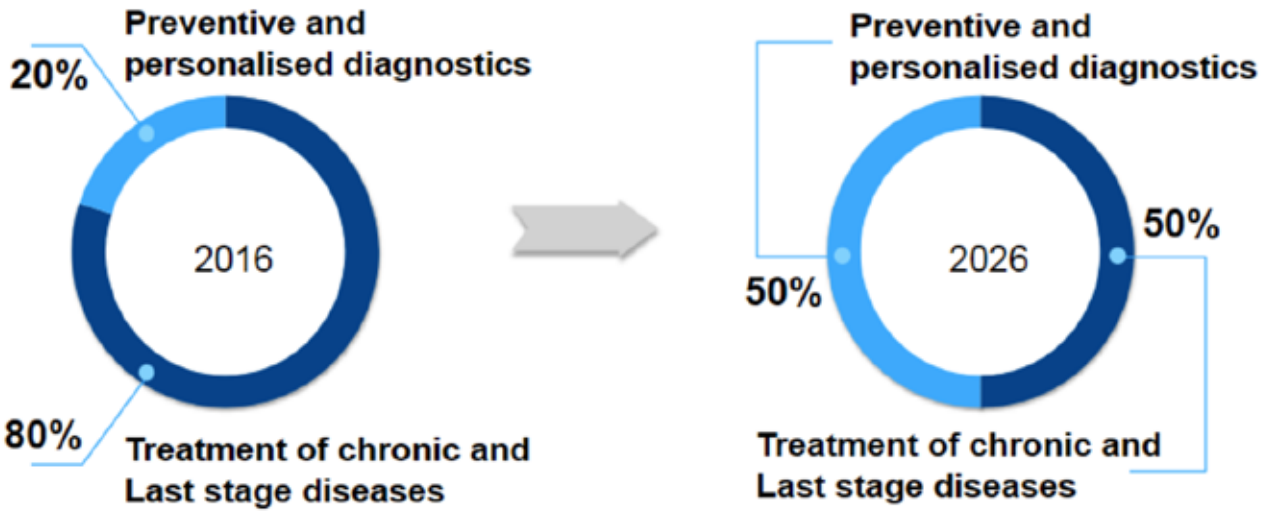

Preventive and personalised diagnostics
20%
2016
80%
Treatment of chronic and Last stage diseases
Preventive and personalised diagnostics
50%
2026
50%
Treatment of chronic and Last stage diseases

P3 Cosmetics

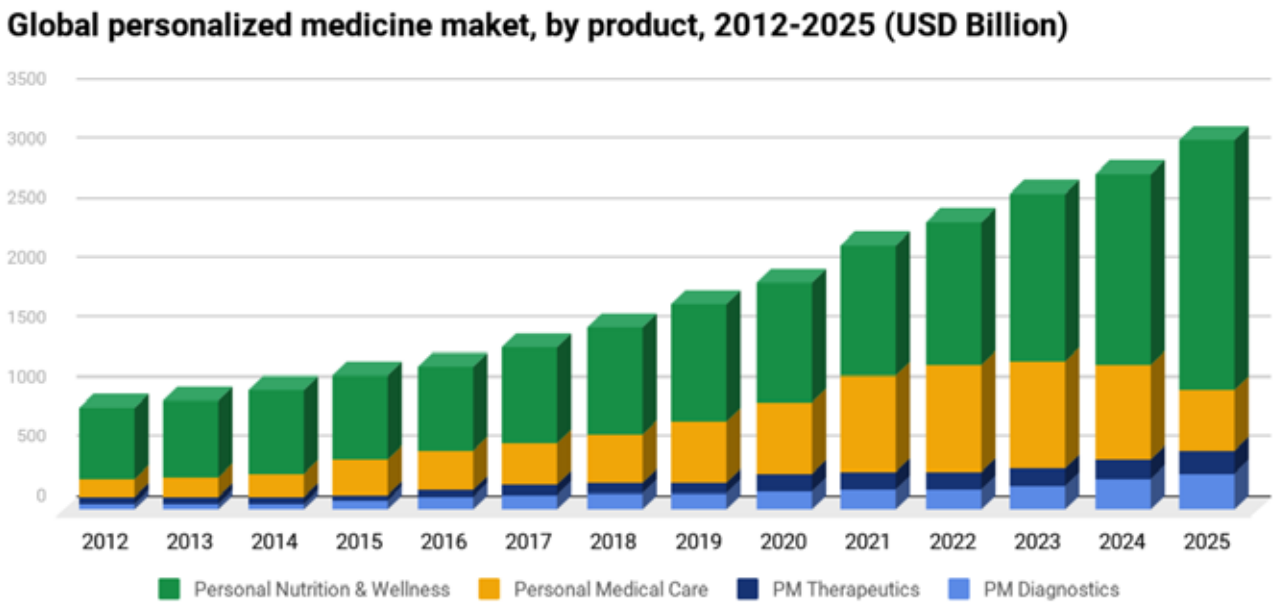
Current and projected:

- Personalised stem cell creams made from your own skin and fat biopsies
- Genuine human stem cell cream (not 'plant stem cells')
- Cosmetic nutraceuticals targeted at the Hallmarks of Ageing
- Senescent cells, collagen cross-linking, glycation and inflamm-ageing
- Rejuvenated stem cell facelifts; harvest and rejuvenate your own fat stem cells and transfer them to boost skin health
- Cosmetic medicines and surgeries
- Full selection of current best in class cosmetic interventions including hyaluronic acid treatments, fat transfer, fillers, botox and reconstructive surgery

P3 Device Therapies

P3 Heart Rate Variability (HRV) optimization Device
Improve and track your HRV with P3

- P3 Non-Surgical Heart Therapy Device
  Stimulate new blood vessels in your heart to prevent heart attacks without surgery
- P3 Ultrasound Therapy
  Targeted to remove aged collagen and accumulated proteins
- P3 Infrared therapy
  Get the benefits of exercise without exercising
  Heal muscle injuries faster



6.7. EXAMPLES OF APPLIED TECHNIQUES

Personal Genomics; Diet and exercise programs informed by your genome sequencing results.

Blood Glucose optimisation; Wearable patch to track your blood glucose levels in real time, 24/7. Identify foods and behaviours that decrease your blood glucose.

Sleep optimisation; World's most advanced sleep tracking equipment, personalised to your needs.

Diet and Nutrigerontology; (Nutrition and its role in ageing)
World-leading nutrition selected to slow the ageing process and target your priority conditions.

Personalised Nutraceuticals

- Vitamins
- Accurate vitamin tracking through intracellular and enzyme-based vitamin analysis
- Optimise vitamins far beyond the basic A, C, D, E, K, B complex
- High quality nutraceuticals designed for
- High absorption
- Compound purity
- Personalised to you based on
- your genetics, gut & liver health and lifestyle
- High dose intravenous (IV) vitamin therapy options

Minerals

- Most accurate healthy and toxic mineral tracking through hair mineral analysis
- Optimise your healthy mineral levels (Iron, Magnesium, Chromium, Selenium)
- Lower your toxic mineral levels (Iron, Mercury, Lead, Cyanide) through chelation

Natural Products

- Targeted at ageing pathologies and ageing processes (e.g. senescent cells, collagen crosslinking, DNA repair, immune depletion) via proprietary formulations
- Personalised to your genetic disease risks (cancer, dementia, cardiovascular disease) e.g. NToken Saletinamide riboside (NR), green tea catechins, curcumin (turmeric), apigenin, pterostilbene, resveratrol, omega 3s, uridine, neurotransmitter amino acid precursors

6.8. YOUR PERSONALISED MEDICINE PROGRAM

- Extensive analysis of user's tests, personal preferences and needs helps Longevity United create 6 month Personalised Medicines Programs.
- At the end of each 6 month period, all tests are repeated and analysed to see how the program has helped the user.
- Following each of these 6-monthly results, Longevity United adapts user program to improve results.

Programs are formed of 5 Therapy Types:

- Personalised Diet + Lifestyle
- Nutraceutical
- Drug
- Cosmetic
- Devices

Devices include: Wearables, Session based devices, and Surgical Referral

The goals of the program are 4 fold:

- Reduce biological age
- Reduce risk of specific diseases you are most at risk of
- Optimally treat established medical conditions
- Increase performance

Results and personalised medicine program (over 50 combined therapies):

Samples sent to 20+ global specialist labs for:

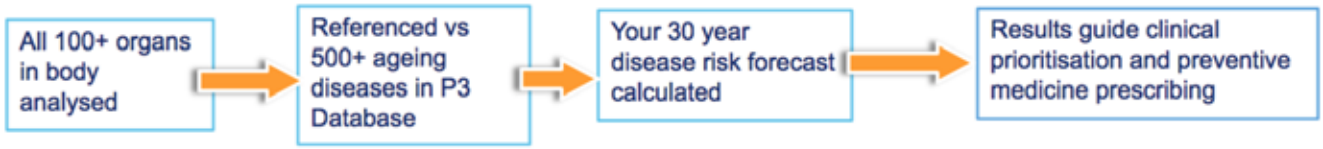
- Whole Genome and Microbiome sequencing;
- Epigenome Biological Age 'EpiAge' & telomere length;
- Fat tissue Mesenchymal Stem Cell Biobanking;
- 1,000 other blood/functional biomarker analysis;
- Precise biological ages and disease risks calculated and tracked in Virtual You;
- Personalised lifestyle, nutraceutical, drug, cosmetic and device intervention plan to reduce biological age, disease, risk and increase performance
- Ongoing 'Portable Medicine' with doctors, nurses and leading-specialists.

Individual tests, services and treatments can be ordered separately or together in a custom bundle as an alternative to classical membership - administered via clinics or through flexible mobile services.

For difficult to acquire tests and therapies the platform enables users to acquire the products they need from anywhere in the world.

Health Forecast

Advanced Organ Specific Biological Age (OSBA) calculations, allow for predicting the rate of decline in health of each organ and the progression of 500+ ageing diseases, such as dementia.



6.9. LONGEVITY UNITED HEALTH CASE STUDIES

Longevity United Skincare: Fight The Anti-Aging Process With Health, Fitness & Science

Longevity United has developed a skin rejuvenation system that embraces the latest research in anti-aging dermatology, genomics, and DNA sampling, monitoring daily for signs of skin conditions and recommending fitness regimes to fight the signs of skin decay.

Longevity United's consumer facing app derives its authority from machine learning algorithms stored within the blockchain back end that process multiple data points combined with the latest medical research to provide users with a blueprint to rejuvenate their skin naturally.

Longevity United skindeep is capable of integrating with all of the latest trends within the skincare industry, recently listed by Forbes as including advanced face masks, at-home skincare, Hyaluronic acids and retinoids, probiotic skincare, superfood for the skin, ingestible beauty products, varying textures, and face-brushing techniques

By analyzing and monitoring the latest breakthroughs in aging science to determine what results can be optimized and brought to users within the current skin regimen, Longevity United aims to give everyone access to breakthrough treatments in skin aging research and precision medicine from their own mobile devices.

Currently there are many AI-powered apps on the market that help people better understand their skin and find the products suited to their personal skincare needs. However, the majority of these apps were developed by big cosmetics brands as marketing tools to advertise their products.

Longevity United will aggregate information from these apps and provide recommendations for various products that could help them improve their skin age and condition.

Biomarkers:
Skin Glycation (GLO1 gene), Photo Aging (MMP1, STXBP5L genes), Skin Elasticity (ACE,HIF1A genes), Antioxidant E ect (NQO1 gene), Vitamins & Nutrients (BCMO1 gene), In ammation & Allergies (rs763035, rs111314066 markers), Contact Dermatitis (rs61816761 marker). Psoriasis (HLA-C, IL12B, IL13, IL23R, MTHFR,TNIP1 genes), Eczema (FLG gene), Dry Skin (rs138726443 marker)

Partnering with your favourite skincare brand; established brand names

Longevity United is leveraging its unique position within the skincare market, which is estimated to reach a value of $135 billion by 2021

This enables major global skincare brands to join Longevity United's platform and become part of the "Open Marketplace", with their products recommended and peer reviewed. Targeting brands such as Personal Microderm, Alma Lasers Ltd, L'Oreal, Allergan Inc, Cynosure Inc., Solta Medical Inc, and Beiersdorf AG. [22]

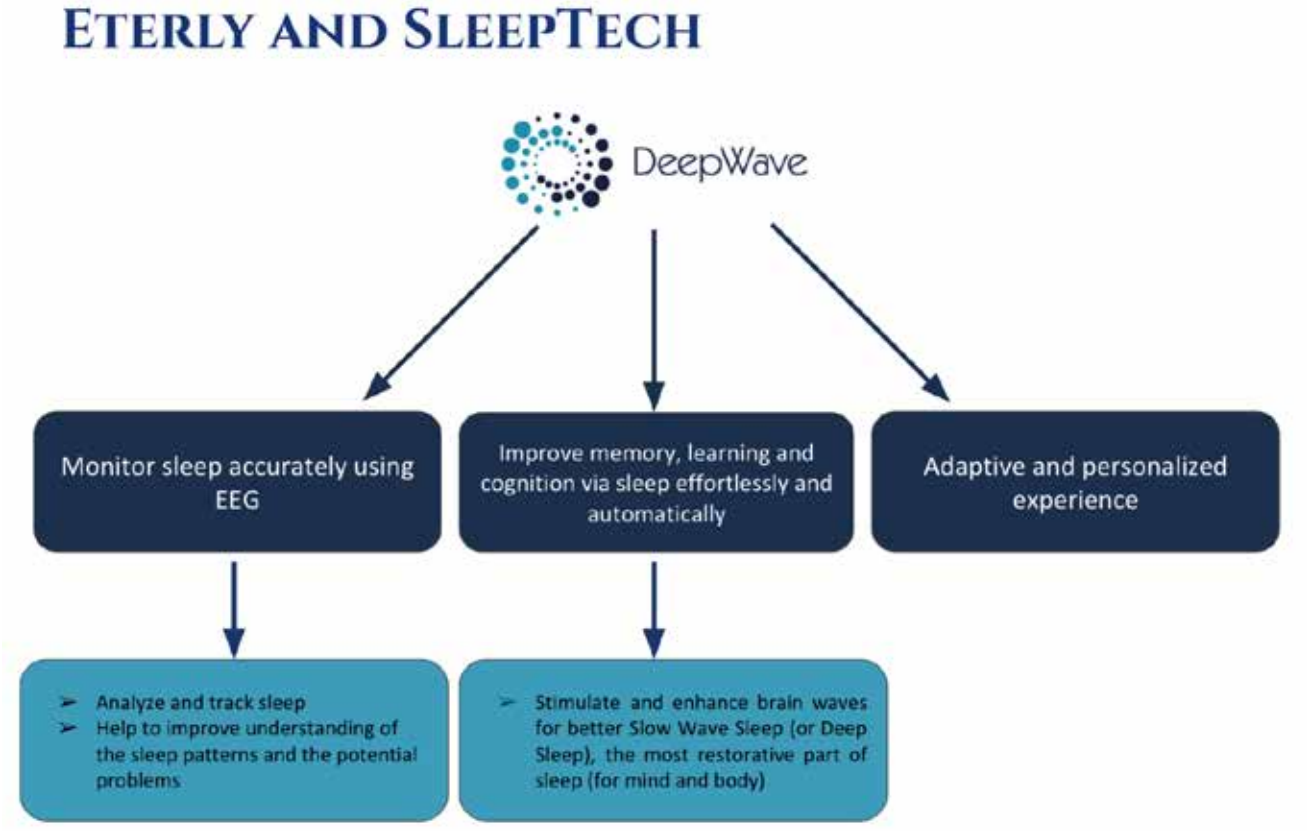
Scientific progress is inspired by user feedback and success cases leading to further market growth and ultimately, better products. It has been estimated that the skincare products industry will reach a value of $135 billion by 2021, with facial care, in particular, expected to achieve above average growth. It has also been estimated that the anti-aging cosmetics market as a whole will grow at a CAGR of 7.5% between 2016-21, achieving a market valuation of $216.52 billion. [21]

Longevity United SleepTech

SleepTech is one of the subsectors of the NeuroTech Industry. Sleep is the gateway to health, affecting myriad bodily processes, in particular memory, cognition, mood, and cardiometabolic health.

In 2018-2020 we will observe the convergence of NeuroTech, AI, and SleepTech for personalized precision medicine. Longevity United will be one of the pioneers who will contribute to this convergence.

One of the future key SleepTech industry players is DeepWave - a company developing a device improving memory and cognition by enhancing the process of Slow Wave Sleep (SWS), or "deep sleep" through technology out of Northwestern University and funded through Military and Google X grants.



After both companies presented at the Precision Medicine World Conference (PMWC) in San Francisco the data-science driven neurotechnology company DeepWave Technologies and Longevity-focused health and fitness mobile app Longevity United have cemented their burgeoning relationship through the formation of a strategic partnership to synergistically enhance their growth, capabilities and services, while enhancing the joint marketing strategy and dynamic of client acquisition for both companies.

Longevity United will enhance Deep Wave's research and development facility by integrating the company's services with their mobile app and substantial software development resources, as well as additional AI-driven machine learning predictive analytics techniques, helping Deep Wave to optimize its analysis of sleep patterns, and finetune its front-facing offering.

In turn, Deep Wave will empower Longevity United's app and platform with its advanced expertise in SleepTech, which is at the forefront of Longevity and personalized health research in the neurotech sector, augmenting Longevity United's own daily monitoring of users' sleep patterns, resulting in more and better personalized recommendations.

As part of the agreement, Deep Wave will join Longevity United's open marketplace for health, fitness and Longevity treatments and products as a trusted vendor.

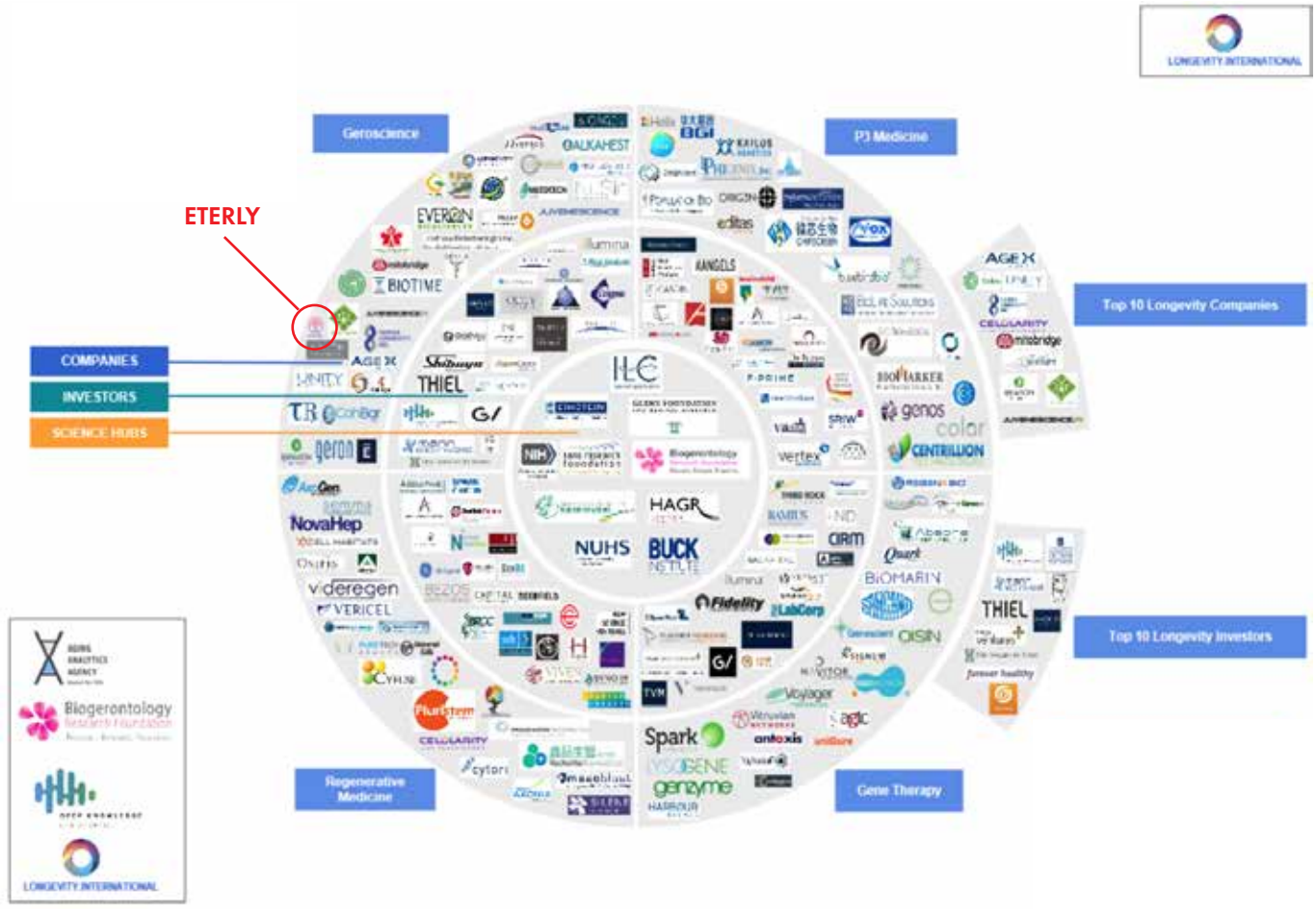
Deep Wave Technologies is a neurotechnology start-up funded via government grants and a cooperative agreement with DARPA, focused on enhancing memory and cognition through the process of Slow Wave Sleep (SWS), or "deep sleep" using technology developed by Dr. Giovanni Santostasi and his colleagues. The device uses an EEG system that synchronizes with the user's own brainwaves and employs precisely-timed pulses of a pink noise to increase the amplitude of SWA using sound alone. The proprietary algorithm has been tested on individuals using laboratory-grade EEGs; results showed a 400% increase in the memory-strengthening effects of a natural night of sleep versus a night of natural sleep alone. Research has shown that sounder sleep can significantly reduce the risk of stroke, depression, heart attack, hypertension, obesity and diabetes.

7. THE MARKET

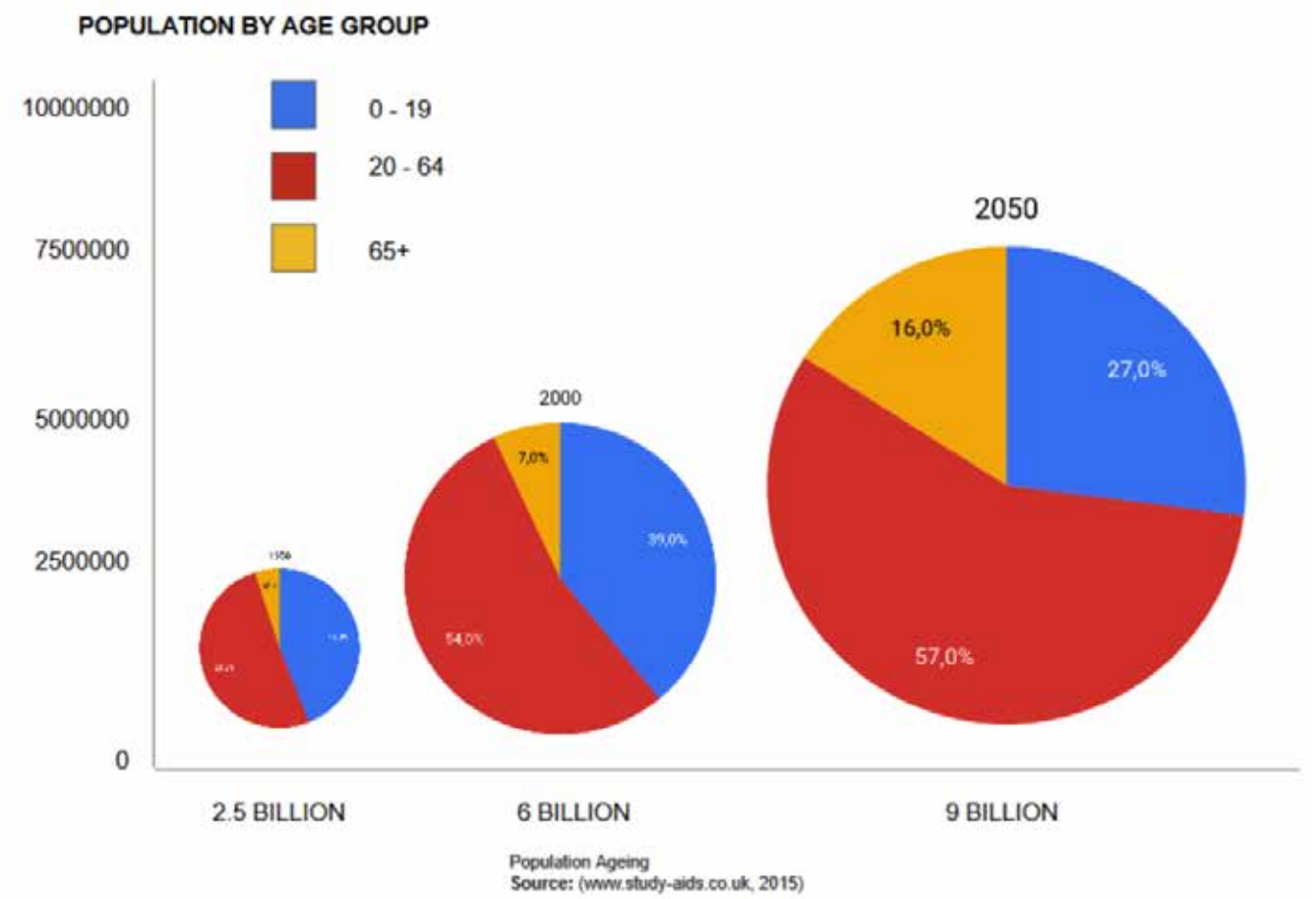
7.1. THE CREATION OF THE MODERN-DAY LONGEVITY INDUSTRY

Longevity is one of the newest and most actively developing fields of scientific practice. Throughout the ages scientists have thought about and investigated the possibility of increasing life expectancy. Today, it is of particular concern to populations that are aging all over the world - most notably the "baby-boomer" generation.

THE GLOBAL LONGEVITY LANDSCAPE 2017



Data provided by the United nations reveals that, today, the number of people aged 60 years or more numbers 0.9 billion, and according to forecasts, is set to grow to 1.4 billion by 2013, and to a staggering 2.1 billion by 2050, meaning 1 in every 5 people will be aged over 60 years. [26] By 2030, older persons will outnumber children aged 0-9 years (1.4 billion versus 1.3 billion); by 2050, there will be more people aged 60 years or over than adolescents and youth aged 10-24 years (2.1 billion versus 2.0 billion).



Population Ageing
Source: (www.study-aids.co.uk, 2015)

In the US alone, according to the population reference bureau, the number of Americans aged 65 and older is projected to more than double from 46 million today to over 98 million by 2060, and the 65-and-older age group's share of the total population will rise from 15% to nearly 24%.

At the same time, average U.S. life expectancy has increased from 68 years in 1950 to 79 years in 2013, in large part due to the reduction in mortality at older ages. What this illustrates is that, by taking better care of ourselves, and continuing to make advances in medicine and the study of human biology, humans can indeed live longer lives.

The modern day study of the Longevity industry has been kickstarted by a series of investments by notable entrepreneurs and tech titans. Celebrated tech billionaires such as Microsoft's Bill Gates, Jeff Bezos, of Amazon, and Peter Thiel, founder of Palantir, have invested in companies such as Unity Biotechnology, which has raised $116 million dollars to fund research into therapeutics that prevent, halt or reverse diseases of aging, and Illumina, a gene-sequencing giant that has recently spun off a company called Grail, focused on creating an all-in-one blood test for cancer. Recently DARPA, the Defence Advanced Research Projects Agency, established a Biological Technologies Office, with the aim of investing more of its funds into biotechnologies; the agency said in a statement that: "DARPA is poised to give unprecedented prominence to a field of research that can no longer be considered peripheral to technology's evolving nature."

7.2. MARKET SIZES AND POTENTIAL

In recent years the market for products based around the science of Longevity has exploded. Aging is more widely accepted as a disease in itself, the symptoms of which can be reversed, delayed, or possibly even cured altogether. Research and investment into the different branches of the science of Longevity has increased exponentially:

Regenerative medicines: According to a report from Goldman Sachs, venture capital in companies pursuing regenerative medicine increased from $296 million in 2011 to $807 million in 2016, growing roughly 34% year-over-year. The current global market for regenerative medicine is $36B and forecasted to grow to reach $49.41B by 2021.

Healthcare AI: The U.S. healthcare AI market exceeded $320 million in 2016, and is estimated to grow by more than a 38% CAGR through 2024 (Global Market Insights, "Healthcare AI Market Size, Competitive Market Share & Forecast, 2024").

Cell Therapy: the current global market for cell therapy is $6B and the industry is expected to grow to over $8B by 2018 at an annual growth rate of 21 per cent. Approximately 100,000 patients will be treated with CAR-T immunotherapies by 2021. There are over 1,900 active cell therapy clinical trials, targeting indications such as cancer, heart disease, diabetes, chronic wounds, neurodegenerative disease, stroke, spinal cord injury, vision impairment and severe burns, amongst others. There are 574 active industry-sponsored cell therapy clinical studies, including 50 in Phase 3 development.

Nutraceuticals: according to a new report by Grand View Research, Inc., the global nutraceuticals market is projected to reach $578.23 billion by 2025, with rising health concerns as the main driver. Dietary supplements in particular, a subsegment of nutraceuticals, is expected to grow at a CAGR of over 9.7%, mainly due to rise in demand from Brazil, China, India, South Korea, Poland and MexToken Sale. To be classified as a nutraceutical, a product must have physiological benefits or provide protection against chronic disease. They may be used to improve health, delay the aging process, and increase life expectancy.

Source: http://dev.rodpub.com/images/132/218_main.jpg

Studied from recent years have shown promising results for nutraceuticals in various disorders including allergies, Alzheimer's, cardiovascular diseases, cancer, diabetes, eye disorders, immune system status, inflammations, Parkinson's disease as well as obesity.

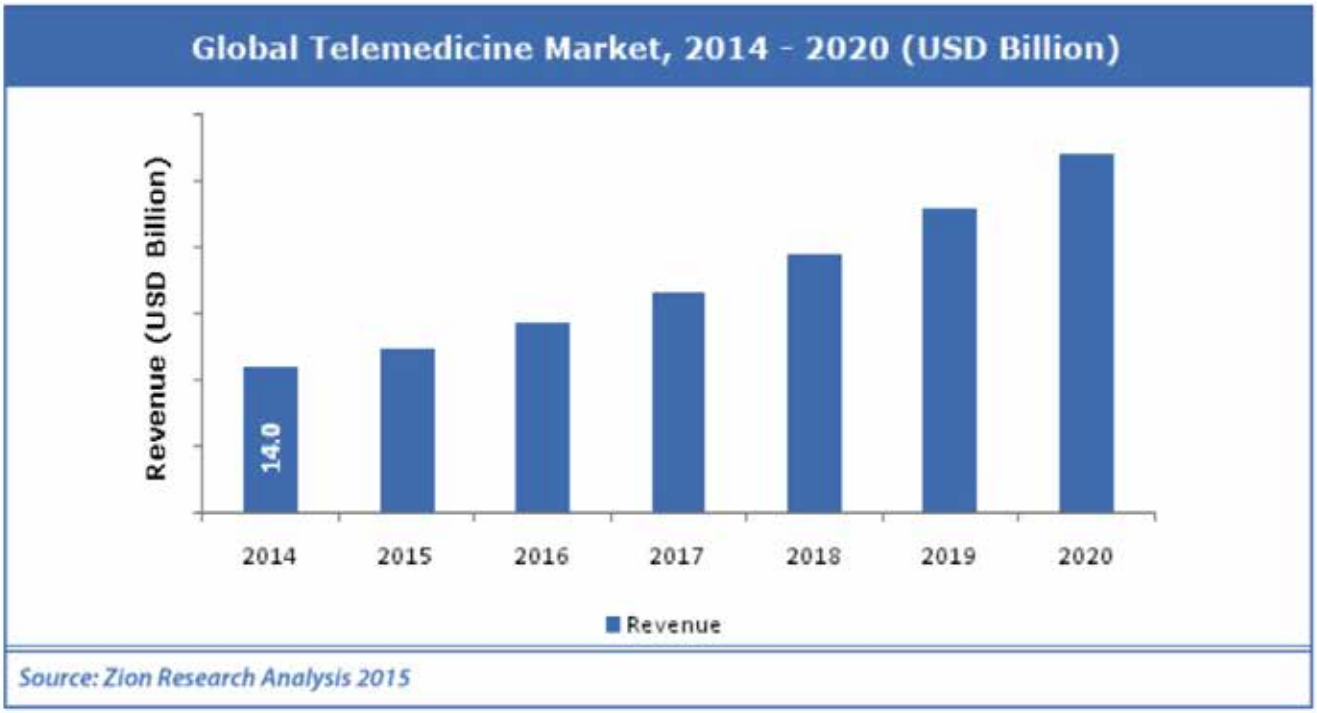
The antidiabetic drug metformin and the immunosuppressant rapamycin are both FDA-approved mTOR, or mechanistic target of rapamycin, inhibitors that multiple animal studies have shown may have anticancer and anti aging properties beyond their licensed clinical applications. However, the potential to use these drugs for off-label, prophylactic use to prolong a healthy lifespan is hampered by their side effects.

An international research team (Insilico Medicine) has now applied deep-learning neural networks to identify natural, and potentially far less toxic, mimetics of rapamycin and metformin, which could springboard the development of anti aging nutraceuticals that aren't subject to FDA regulation. Currently there are already 2 anti-aging nutraceuticals identified by AI available on the market. [20]

Global Healthcare Analytics: the global healthcare analytics market was estimated at USD 7.39 Billion, it is expected to reach $24.55 Billion by 2021. Global Healthcare expenditure is expected to reach $8.7 trillion by 2020 (Deloitte).

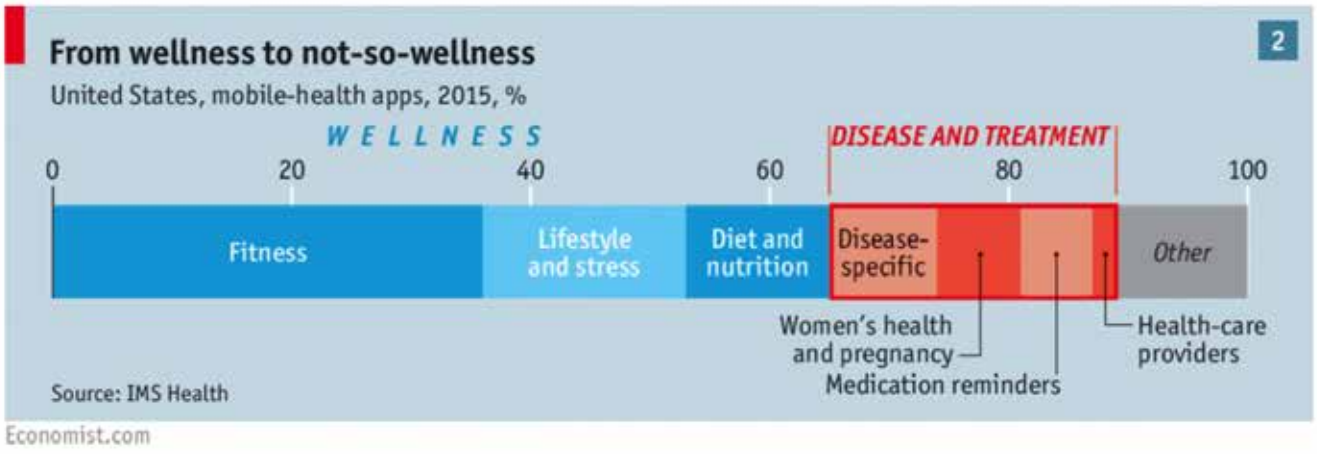
Telemedicine: the costs of healthcare increase, often dramatically, with old age. As such, Telemedicine is poised to be an effective tool in geriatrics. The benefits of telemedicine for seniors include remote monitoring, which is particularly important for chronic conditions. The technology also lessens the number of routine in-person visits, which can be costly and difficult for seniors. It allows for better monitoring as it can be utilized to keep track of sugar levels and blood pressure, which, in turn, leads to a lower chance of hospitalization. And finally, it grants patients a greater access to specialists. Statistica reports that the global telemedicine market size will surpass $41 billion dollars in 2021.

The precision and timeliness of remote monitoring devices have the potential to improve diagnosis and provide more customized treatments or post-treatment recuperative plans. The most significant impact from remote monitoring technology will translate in its increasing role in the diagnosis and treatment plans for individuals suffering from chronic diseases, such as diabetes, arthritis, and osteoporosis.



Source: http://www.marketresearchstore.com/content/uploadedimages/Telemedicine_Market.jpg

7.3. GLOBAL MOBILE HEALTHCARE MARKET

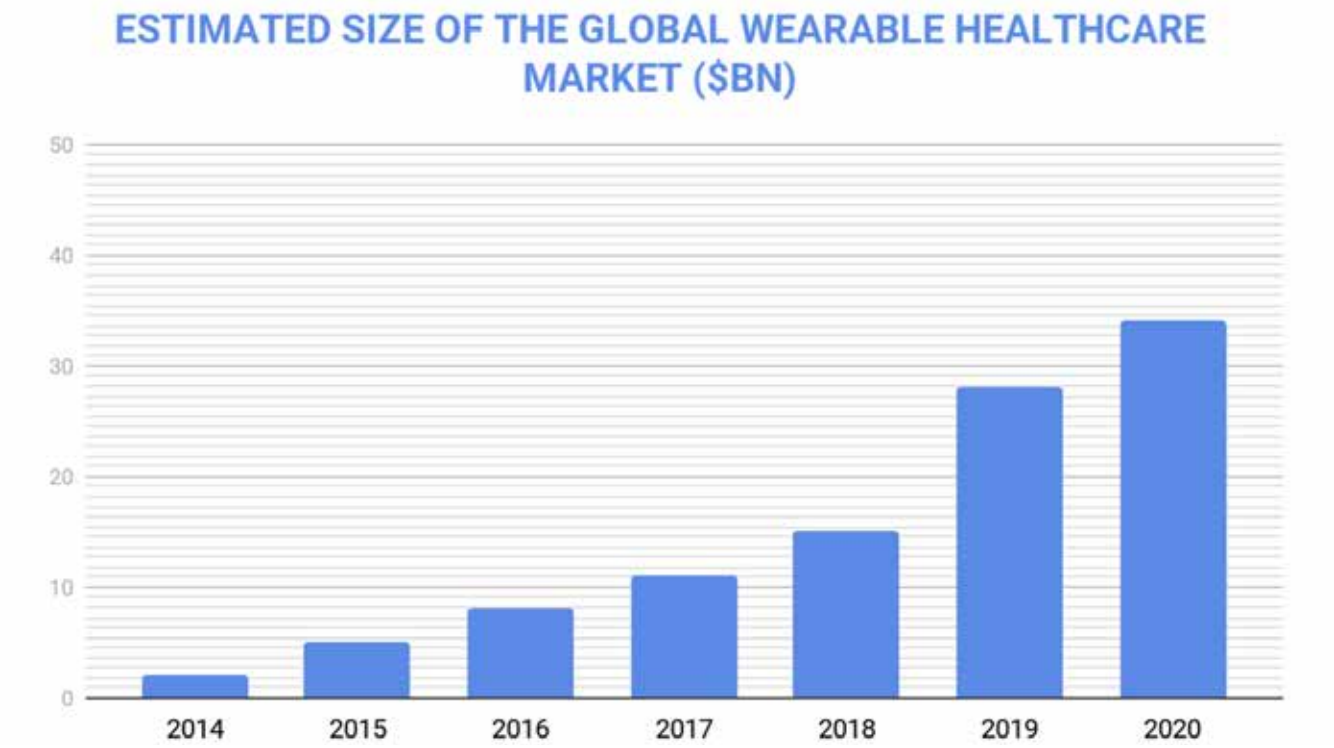


Health and fitness apps show very high retention rates. According to the research by Flurry Analytics, over 75% of active users open their health and fitness app at least two times a week, and more than 25% of users access their fitness apps more than 10 times a week. The high frequency of usage drives up engagement, which, for app developers, presents an attractive opportunity to increase monetization. What's more, health and fitness app users are loyal, with 96% of them sticking to only one app. But that also means that new incumbents will find it difficult to acquire users.

8. WEARABLES

Wearables, as the name suggests, are items worn on the body that store, record or communicate with the wearer or a professional information related to health. As such, they come in varied form factors and can perform varied functions depending on context and wearer.

The wearable fitness device market is estimated to be worth around $13.2B, with healthcare amongst its fastest growing segments.

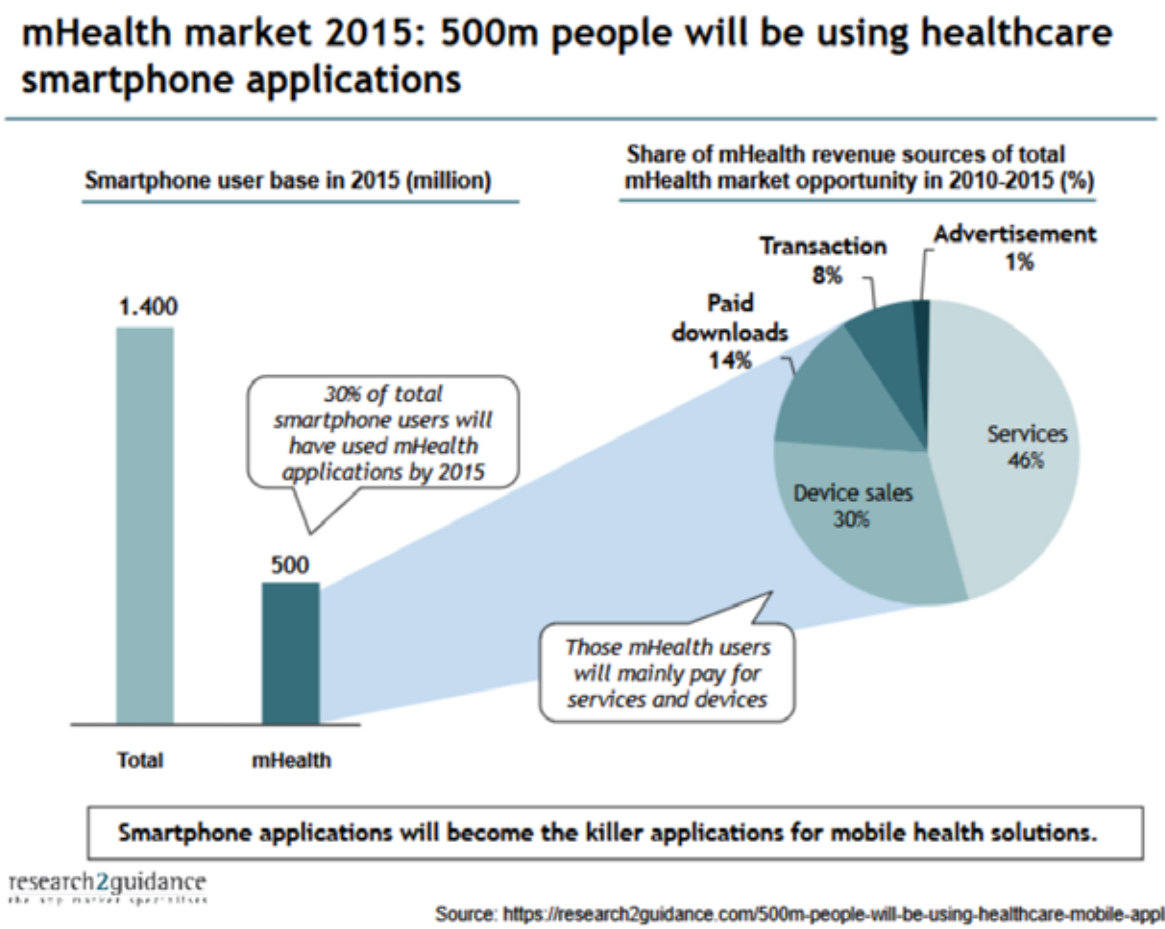


Today's health and fitness device makers fall into 4 categories:

Lifestyle -the most advanced segment includes fitness, activity and sports trackers is increasingly beginning to merge with the health sector, offering a wider range of measurements.
Diagnostics - non invasive devices that provide health information; monitoring includes glucose, cardiovascular, event, pregnancy, obstetrics, fetal, sleep and neurological.
Therapeutics - wearables are capable of monitoring disease states, and health activity, but also storing data and providing feedback e.g. respiratory information, insulin and pain management.
Injury prevention - this can include measuring body movements, wearable sensing garments, fall detection. Can also include rehabilitation.

Thanks to the progress and commercialisation of modern tech products, consumers are increasingly comfortable relying on wearable devices to help recover from illnesses, maintain a healthy lifestyle and record daily activities.

Many monitoring devices such as Fitbit, Mapmyrun etc. tend to be simplistic or have a single focus such as step counters or heart rate monitors - compromising their value to the modern consumer. They are designed to carry out a single function and often lack the capability to provide more sophisticated health monitoring and recommendations about diet, fitness regimes, and particularly Longevity.



Source: https://research2guidance.com/500m-people-will-be-using-healthcare-mobile-applications-in-2015-2/

But as the science behind these devices is based on medical data, it follows that there should be a second body of data to draw from - the user's unique personal data.

Moreover, in today's world, nearly every company is looking to compile as much data on their "customers" as possible, from health institutions, to the food and drink industry. But all too often the companies are unable to make the data work for them, lacking the ability to use machine learning algorithms to generate useful, accurate information. Device makers of the future could add data into their platform, storing it effectively and efficiently using blockchain technology, and combining it with user data and personal information in an anonymised, secure way to create recommendations, diagnoses, health and fitness plans, product recommendations and more.

Science-backed lifestyle technology is opening up the following doors:

Device makers can market themselves to a wider, more sophisticated audience, becoming an indispensable part of their health and fitness regimes. They could interpret and process user data alongside the latest medical research and make personalised adjustments to users' daily activities.

Companies wish to know about their employees and create a more holistic health program. Examples of companies already offering digitised, wearable driven corporate wellness programs include YouEarnedIt, Fitbit and Peerfit - however these are early stage companies that offer no rigorous medical backing.

Typical example: A retirement home may wish to plan a year's worth of nutritional, healthy meals in advance and order the most appropriate goods in advance. This home could provide invaluable guidance, assessing the entire communities' needs in one go and calculating precisely the amounts and combinations required, wasting nothing; or devise personalised health plans and diets for a corporate member of staff recovering from a serious illness to hasten their recovery.

Remote patient monitoring is the latest innovation in the healthcare industry, as it allows patients to keep a check on their own conditions, eliminating the need for repeated visits to the physician's office. The precision of such devices have the potential to improve diagnosis, and provide a more customized treatment or post-treatment recuperative plan. The most significant growth driver for the markets is the increasing role these devices play in diagnosis and treatment plans of chronic diseases such as diabetes, arthritis, and osteoporosis.

Unlike traditional ways of monitoring various bodily functions, wearables hold key advantages such as the ability to track parameters in real time, and their flexibility with regards to location. The latter is thanks to their ever-shrinking form. In time-sensitive situations such as the event of a heart attack or stroke, they can dramatically decrease response time due to their instant tracking of vital signs and any anomalies. Superior connectivity also enables immediate action, whether it is alerting a family member of the event, a doctor, or more crucially, the ambulance service itself.

The most common parameters trackable via wearables at present are heart rate and the number of steps taken by the wearer. However, many more features are about to become available to users by adding extra types of sensors. This will result in a vaster array of readings that will be tailored to each user.

Outside of a life and death scenario, wearables are also powerful items for encouraging users to lead active, healthy and life prolonging lifestyles. Motion sensors track behaviour e.g. whether someone is active or sedentary. Prompts at key times during the day can encourage more exercise.

The speed and response of wearables are also key features for the elderly population. For example, the ability to detect falls and alert the relevant caretakers, as well as keep track of medication and issue reminders, are very important to the wellbeing of this demographic.

All the data collected through the wearable can also effortlessly be synced with a doctor's records, optimising any time spent in a consultation at a clinic. An even more advanced application of wearables in the future is the automatic shifting of medication dosage based on data they can sense that is of relevance.

9. LONGEVITY UNITED AND BLOCKCHAIN

There are almost innumerable ways that blockchain technology can be beneficially sown into the healthcare industry, and we've barely begun to scratch the surface of that potential. For example, it can help Electronic Health Records on three fronts. It builds trust, giving users the ability to verify if the contents of a record have been altered. It is secure, allowing only authorised personnel to access information. It allows for interoperability, which allows each party to append information to the record.

These three building blocks - security, immutability, and anonymity - gives the blockchain the potential to be the central nervous system of a global precision-medicine ecosystem. Providers can leverage the qualities of blockchain technology - namely safety and trust - to enable collaboration between participants, researchers and themselves to develop individualised care.

Further potential applications of blockchain technology in healthcare include forming a chain-of-custody log when it comes to the integrity of the drug supply chain, and enhancing efficiency when it comes to clinical trials by reducing the incidents of fraud and error. Immutable records of trials and results lead to a drop in outcome switching, data snooping and selective reporting.
The Longevity United platform will be based on an innovative distributed database technology utilising the blockchain.

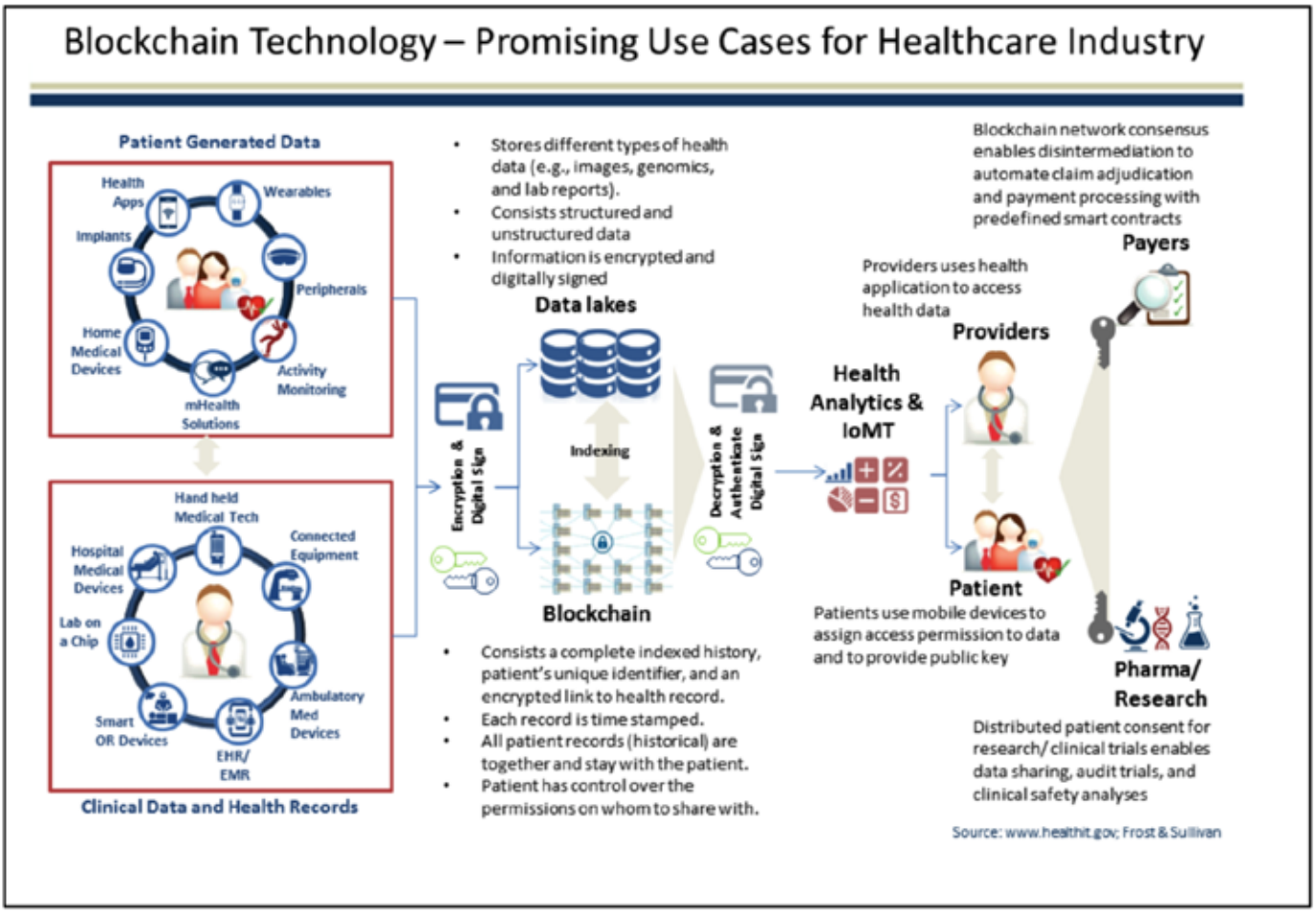
The users' personalized medical history and data: will be hosted by a super-secure storage facility and encrypted by blockchain technology.

Users owns their data: Eterly will be one of the first mobile apps that will guarantee the personal medical data of users will be controlled only by the users.

A special technology for access control: Users will be able to grant access to their data to authorized parties such as their doctors or to sell access to that data to carefully selected and vetted R&D Pharma organizations.

Reliable and transparent data: All parties in an ecosystem can be sure of the integrity of the data.

Tokenization of the ecosystem: will create an augmented internal economy



Source: https://www.forbes.com/sites/reenitadas/2017/05/08/does-blockchain-have-a-place-in-healthcare/#604b49a61c31

9.1. BLOCKCHAIN AND HEALTHCARE

In a recent blog post titled "How Blockchains Can Provide New Benefits For Healthcare" commenting on a survey commissioned by IBM, "Healthcare Rallies for Blockchain" Heather Fraser, Global Life Sciences & Healthcare Lead, IBM Institute for Business Value concludes that "Our analysis reveals near unanimity; blockchain benefits are compelling and can be gained in every aspect of healthcare. Potential benefits will only increase as blockchains in healthcare get closer to commercialization." [18]

Blockchain Value Propositions for Healthcare

"One of the pretty obvious use cases for Blockchain is its ability to identify when there's been data manipulation and when there's been a disruption in that flow" – Peter Nichol, former IT chief of the Connecticut state health insurance exchange

	Health Information Exchange (HIE) Pain Points	Blockchain Opportunities
	Establishing a Trust Network depends on the HIE as an intermediary to establish point-to-point sharing and "book-keeping" of what data was exchanged.	Disintermediation of Trust likely would not require an HIE operator because all participants would have access to the distributed ledger to maintain a secure exchange without complex brokered trust.
	Cost Per Transaction, given low transaction volumes, reduces the business case for central systems or new edge networks for participating groups.	Reduced Transaction Costs due to disintermediation, as well as near-real time processing, would make the system more efficient
	Master Patient Index (MPI) challenges arise from the need to synchronize multiple patient identifiers between systems while securing patient privacy.	Distributed framework for patient digital identities, which uses private and public identifiers secured through cryptography, creates a singular, more secure method of protecting patient identity.
	Varying Data Standards reduce interoperability because records are not compatible between systems.	Shared data enables near real-time updates across the network to all parties.
	Limited Access to Population Health Data, as HIE is one of the few sources of integrated records.	Distributed, secure access to patient longitudinal health data across the distributed ledger.
	Inconsistent Rules and Permissions inhibit the right health organization from accessing the right patient data at the right time.	Smart Contracts create a consistent, rule-based method for accessing patient data that can be permissioned to selected health organizations.

CLASSIFYING COMPANIES BY VALUE

Companies	Description	Value Proposition	Supporting Trends
Guardtime  **Brontech**  **MedRec** 	**Patient Data Management** These companies perform a service similar to putting healthcare data on the cloud, except that they put it on the Blockchain and unlock the additional benefits that come with the system.	• Foster interoperability to reduce • Secure health records for patients and care providers • Foster ancestral analysis over time • Enable automation that can come	The typical primary care physician has to coordinate care with **229 other physicians** working in 117 practices. Lack of interoperability costs **150,000 lives and $18.6 billion** per year.
Gem  **Blockchain Health Co.**  **Stratumn** 	**Research and Clinical Trials** These companies protect the identity of people involved in trials, reduce falsification of results, and manages the thousands of micro-processes and documentation involved.	• Reduce falsification of results • Scale number of people who can and are willing to contribute to studies • Speed up the process • Secure identity of participants	In 2015, publisher Springer had to **retract 64 articles** from its journals for fraudulent findings.
Stratumn  **Blockpharma** 	**Drug Provenance** These companies prevent patients from consuming counterfeit drugs, by increasing visibility and transparency thus reducing probability of misinformation and data inaccuracy in the supply chain.	• Track drug integrity all the way to the final patient • Reduce complexity of the supply chain • Automate processes using smart contracts	**800,000 deaths** due to consumption of falsified medicines in the world every year. $**100s of billions** are spent tackling counterfeit drugs in developing nations annually.
Pokitdok  **Factom**  **Tierion** 	**Payments, Claims & Other Services** These companies provide other value-added services like payment optimization, scheduling, document management and insurance claims to improve efficiencies in managing operations at hospitals.	• Reduce inefficiencies in hospital operations • Reduce complexity around processing payments to and from different insurance agencies • Provide immutable storage/ history of transactions	Highmark for example, the biggest health insurer in Pennsylvania **lost $222 Million** selling coverage under the Affordable care Act in 2015.

Fraser writes that the blockchain is seen as a "trusted audit trail verifiable in real time. This means blockchains don't just track compliance; they streamline enforcement; and deter bad actors from the outset." She adds that "blockchains establish a platform to automatically enforce privacy regulations; rules embedded via smart contracts dictate what people can see and when." Executives identified 3 areas in which they felt blockchain applications could save time, costs, and mitigate risk: clinical trial records, regulatory compliance, and medical and health records.

9.2. BLOCKCHAIN AND DATA SHARING

Fraser also discusses the value of permissioned vs permissionless blockchains "On permissionless blockchains, all parties can view all records. On permissioned blockchains, privacy can be maintained by agreement about which parties can view which transactions and where, by masking the identity of the party." It's clear that blockchain technology is tailor made for the health industry, and especially so when it comes to sharing data. The blockchain has the potential to end the debate over who owns data and how data can be shared. Currently, pharmacies and other medical centres can share patient data with third parties, without having to ask for the patients' consent.

Longevity United can help to put patients back in charge of their own health data.

9.3. FURTHER USES OF THE BLOCKCHAIN

Besides the use cases described above we anticipate that the blockchain technology that Longevity United will build to manage its ecosystem will have a variety of extra uses.

Developers: developers will be able to build applications on top of the blockchain framework that Longevity United provides. Longevity United has the ability to act like an iTunes or Google Play store for quality health and fitness services, and to make it easy and convenient for users to find complementary health services, from access to medical advice, to fitness measurement devices.

Drug development: by permitting drug and pharma companies to access their health records, users can provide invaluable data used to develop new drugs and treatments. Drug development companies are using machine learning techniques to fine tune and accelerate new drug discovery - the final piece in the jigsaw is access to reliable, real-life data.

Supply chain integrity: precise estimates for counterfeit pharmaceuticals are impossible to come by, but a 2013 study by the OECD estimated that counterfeit drugs accounted for 2.5% of the global pharmaceutical drug trade. Experts also believe that the sale of those drugs will grow at twice the rate of legitimate pharmaceuticals. The integrity of blockchain's irreversible, timestamped records could eliminate the possibility of counterfeit drugs being sold via Longevity United's platform.

Anti-fraud measures: Last year, US Attorney General Jeff Sessions revealed health care fraud schemes that cost the government about $1.3 billion, mostly from Medicare, and that represents just a fraction of the money that leaks through fraud and errors in the health sector; again, blockchain is designed in such a way that fraudulent behaviour becomes virtually eliminated, with clear audit trails and the ability to delete or alter existing records.

Treatment course completion; blockchain can store and record treatment programs, and issue reminders to ensure courses of treatment are completed. This is essential , and incomplete treatments weaken the body against attacks, allow viruses and illnesses to fester, and cost medical health programs vast sums of money.

We must also emphasize the importance of the safety that blockchain technology provides, especially in light of the Internet of Medical Things.

10. Longevity United and AI

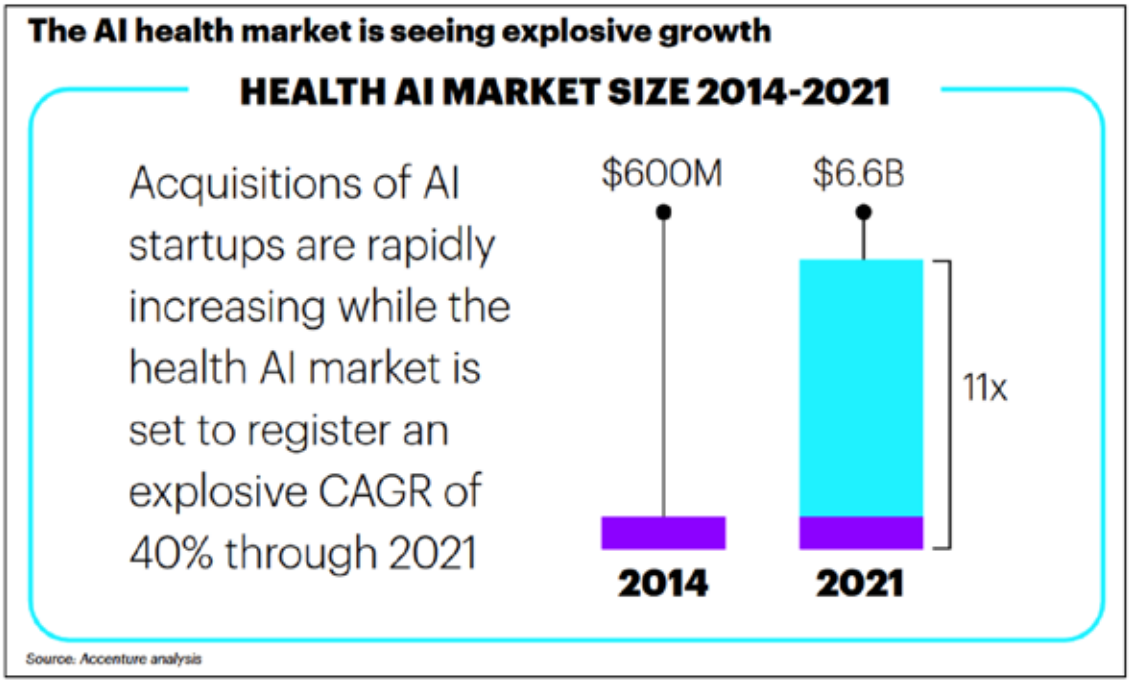
The Fourth Industrial revolution will take root in the healthcare industry with AI as its main engine. It will be comprised of various technologies that will enable machines to play a big role in the administration of functions in clinical healthcare though accurate sensing, comprehension, action and learning.

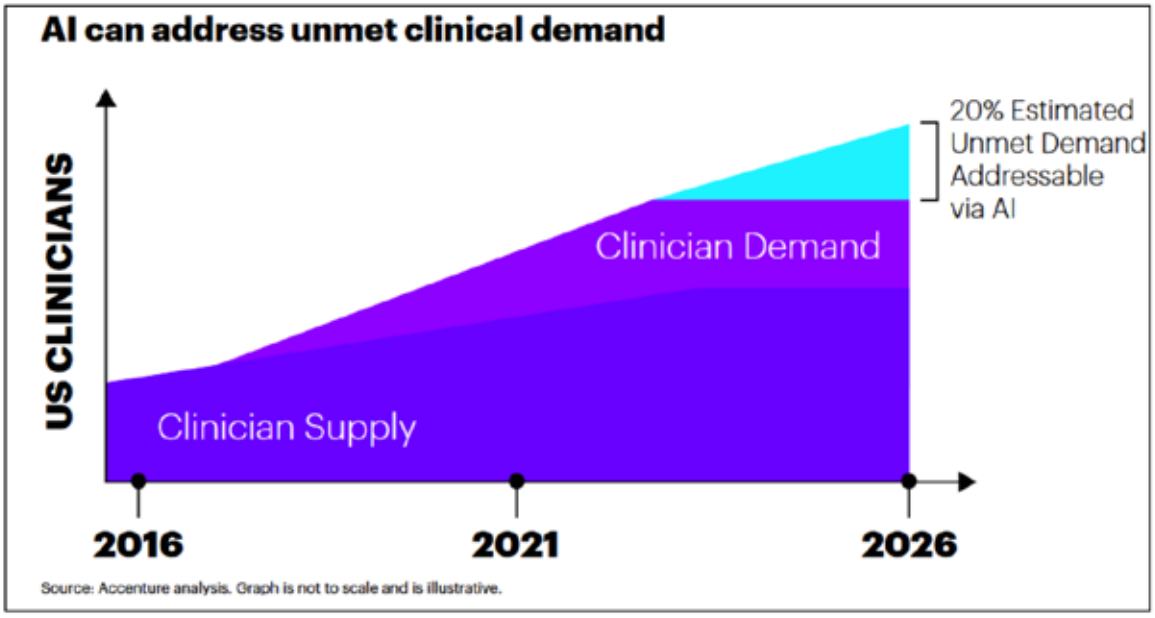
Unlike legacy technologies that only act to complement humans using their algorithms and tools, current health AI is able to genuinely change human activity. AI has already begun to revolutionize multiple parts of the healthcare system, in areas such as treatment plan design and in assistance in repetitive jobs. Furthermore, the technology also extends into the management of medication and even drug creation. And this is just the beginning.

A good reflection of this progress can be seen with the increasing number of startups working on healthcare AI. More than 50 companies have raised first rounds of investments since January 2015. In 2012, less than 20 companies had closed deals, while in 2016 this number went up to almost 70. This growth was followed by a real skyrocketing of AI in healthcare, which took place in 2017. Key driving factors here were the increasing personalisation of medicine in tests for clinical decision making, big data and AI in genetics. In addition, AI spawned real-time monitoring, tied to wearables' key position in digital healthcare.

Much of the current commercial applications of AI concern what is known as weak artificial intelligence, aka narrow AI; think Google, Apple, or Amazon's personal assistants that use natural language processing to understand a query then do a relatively simple search, taking into consideration a few factors from your history and behavior. A truly artificially intelligent system is one that learns on its own, is capable of processing very large amounts of data and digging up associations, and imitates human behavior. We are just beginning to scratch the surface of AI in healthcare.
Real artificial intelligence is already being used to detect diseases. According to the American Cancer Society, a large number of mammograms yield false results - as much as half of healthy women are wrongly diagnosed with cancer. AI, on the other hand, is able to review and interpret mammograms 30 times faster, and with a 99% accuracy rate.

This is possible because we are able to train algorithms to tell the difference between groups of pixels that represent cancer versus groups that don't. Software is able to process millions of those images, or others, in a day.





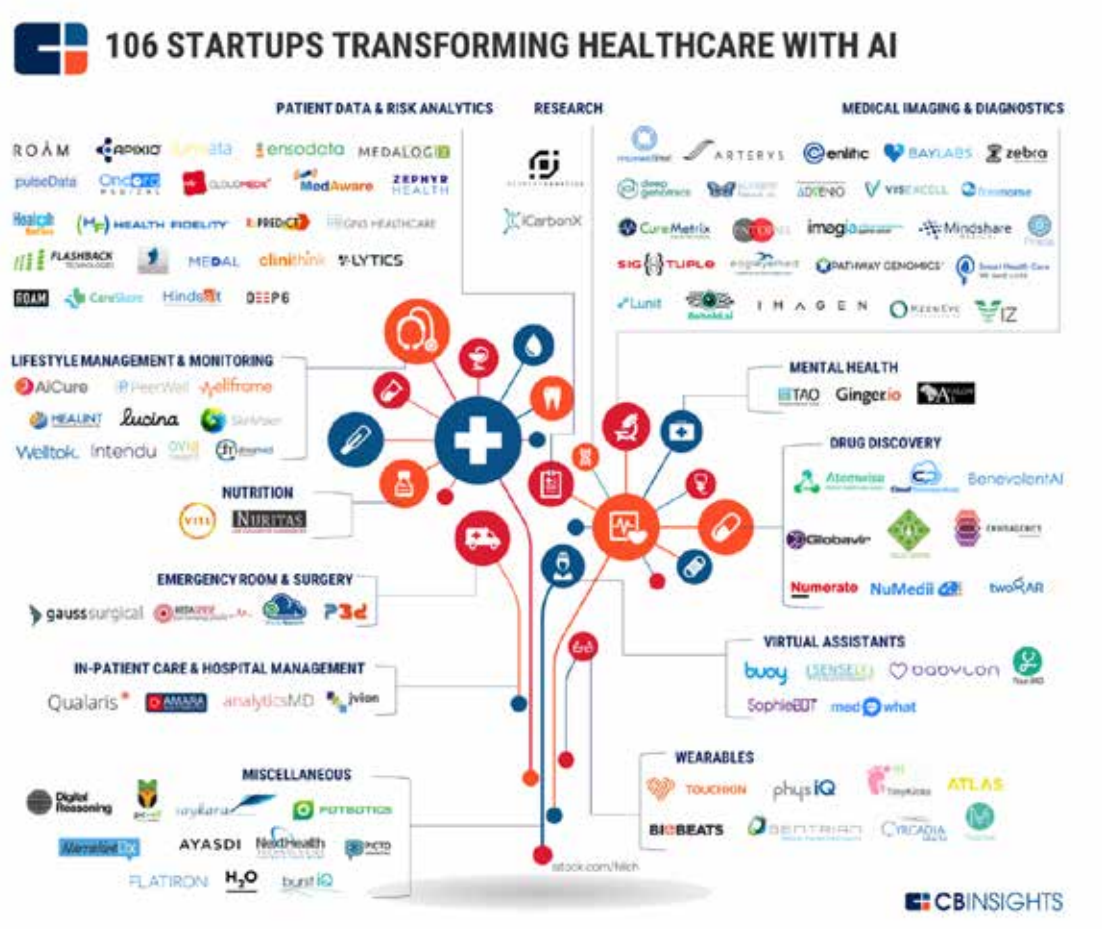
Gartner predicts that by 2025, half of the population will rely on "virtual personal health assistants" powered by AI. These personal assistants would be cognizant of a user's unique medical conditions, history, and genetic makeup and able to incorporate them in its decision making process. Automating primary care needs is a great boon to the elderly demographic in particular, who typically lack mobility. These assistants will help seniors remain independent for longer and reduce the need for hospitalization or staying in nursing homes.

Generally speaking, the progress of AI implementation in healthcare will carry great reduction in costs and time.

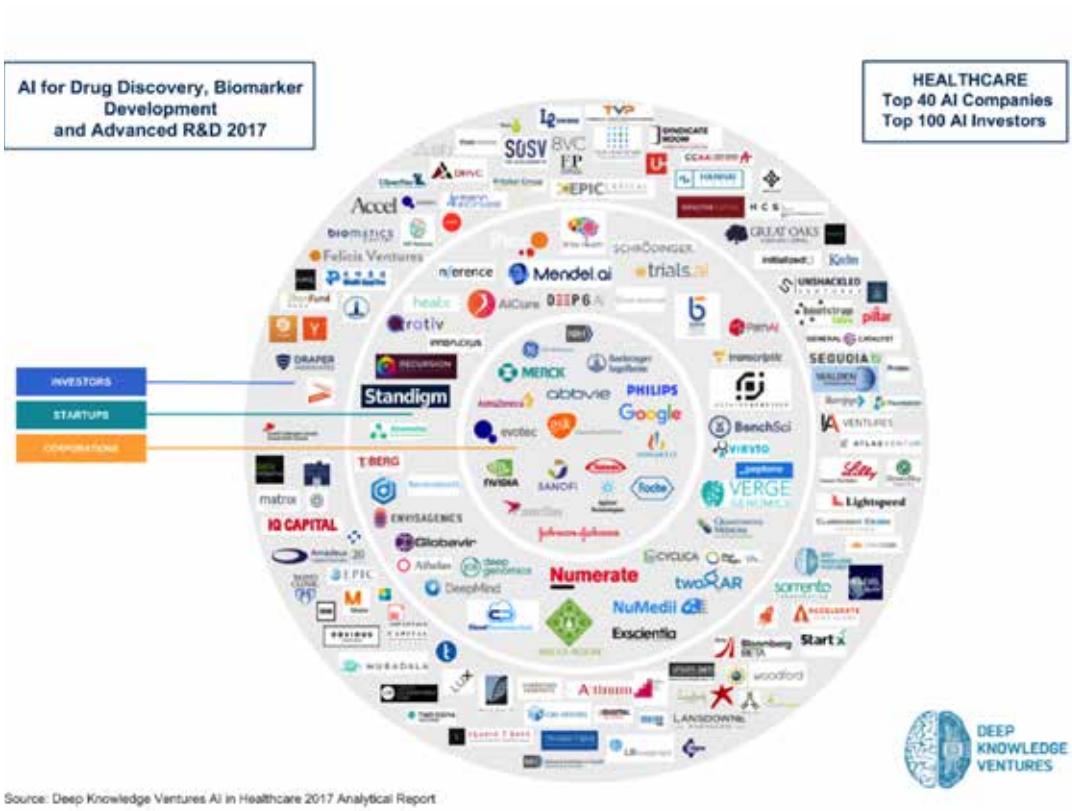
Summary of uses of AI within Longevity United platform and app

- The AI-driven Eterly app is designed to be the ultimate Longevity personal trainer.
- Eterly's AI will have the power to uncover any user's predisposition to specific diseases by processing data stored in the blockchain and provide appropriate treatment recommendations.
- Factors which are medically shown to lead to illnesses are excluded from a person's lifestyle recommendations; their biological processes are regulated to better effect based on the principles of gerontology.
- Using powerful machine learning techniques, Eterly can process thousands of scientific research papers and medical documents in seconds, distilling them into simple sets of rules which would help individuals extend their lifespans.
- The Eterly chatbot is entirely driven by AI and benefits from the super-fast processing of data as described above, which massively increases the effectiveness of the proposed treatments and regimes.

10.1. ARTIFICIAL INTELLIGENCE WILL REVOLUTIONIZE THE HEALTHCARE INDUSTRY

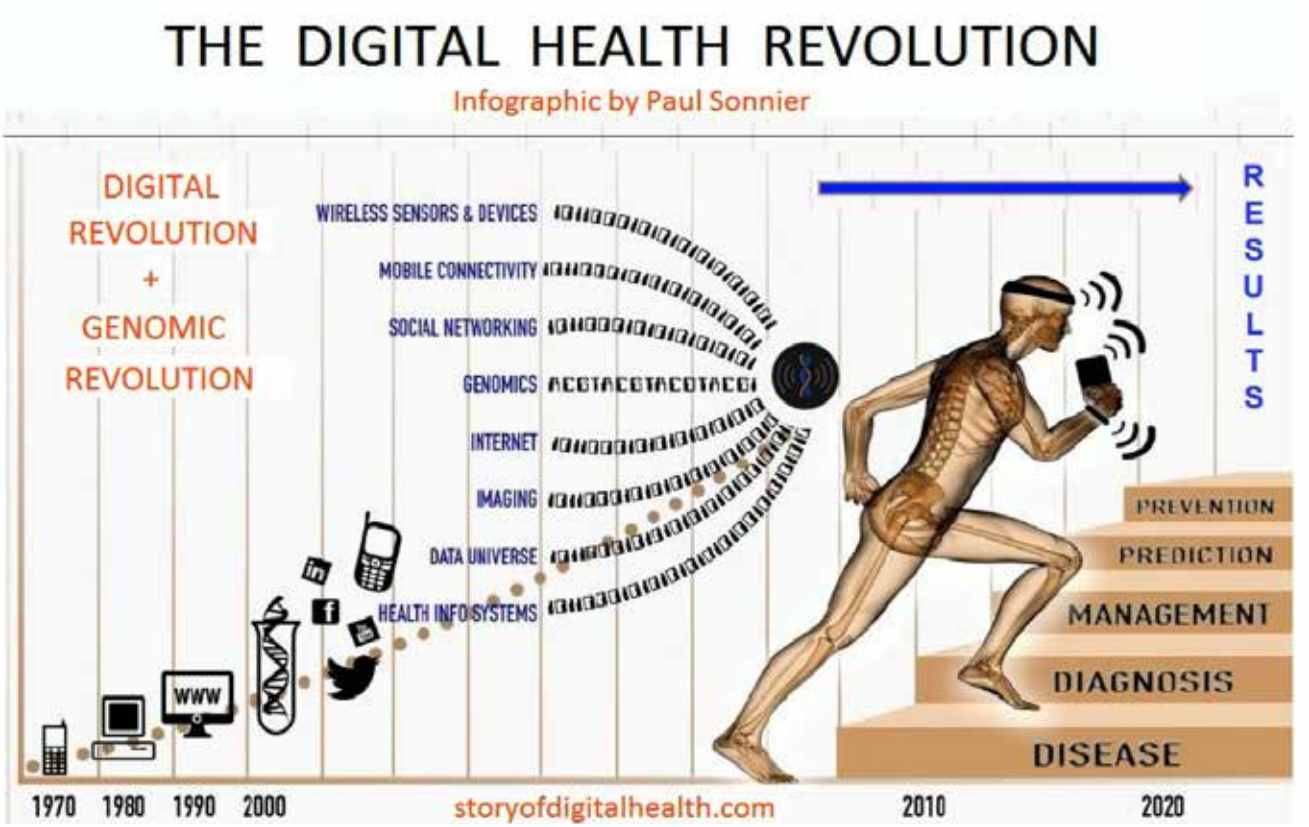


Source: https://www.cbinsights.com/research/artificial-intelligence-startups-healthcare/

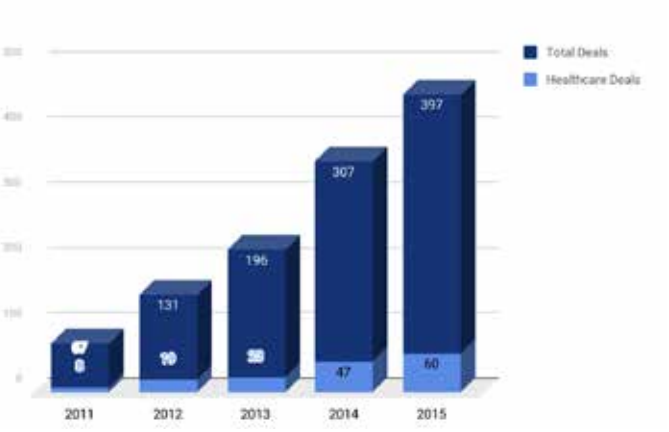


Source: Deep Knowledge Ventures AI in Healthcare 2017 Analytical Report

LONGEVITY UNITED



AI has already begun to penetrate Big Pharma's drug discovery departments, as the infographic below from Accenture shows.



As we can see in the chart above, the total number of deals in AI and healthcare over 5 years leading up to 2015 have been increasing roughly in the same proportion.

The Bio Pharma companies that will successfully create strong AI designed for research and development and drug discovery divisions and succeed in acquiring the best AI startups will become leaders in the field in as little as 3 to 5 years from now. Think of Google's progress and leading position in artificial intelligence following the acquisition of DeepMind for $0.5B in 2014.

Companies that will heavily invest in AI for their drug discovery departments will see their market capitalization skyrocket in the coming years.

If Bio Pharma companies find the courage to spend 10% of their marketing budget on R&D for AI, they could, for example, blow IBM Watson out of the water and reinvent themselves, coming one step closer to halting the looming "Silver Tsunami".

When talking about Artificial Intelligence in healthcare, more often than not, Big Data is the first topic that comes into discussion. Digital data is growing at an exponential rate - by 2020, the data created annually will reach 44 trillion gigabytes. Tech titans such as Google or IBM, are trying to tap the potential of patient data mining using their AI tech. It is worth noting that IDC predicts that the worldwide spend on AI and cognitive computing will reach $46 billion by 2020.

Alphabet, the parent company of Google, recently launched the Google Deepmind Health project. Deepmind Health is able to process hundreds of thousands of medical information entries within minutes. This enables providers to provide better and faster health services. Google also aims to employ the same algorithms that power its search engine to genetic data in the hopes of understanding what makes people healthy.

IBM for its part, is using Watson technology to power WatsonPaths. Its aim is to help physicians make informed and accurate decisions, faster, and to glean insights from electronic medical records.

Genome

The human genome is made up of about 25,000 genes, but some genes may not be fully expressed, some genes share multiple responsibilities, and each gene encodes multiple proteins, all of which are locked in very complex interactions. This is where supercomputers come in. They are able to model biological networks and simulate the functioning of these networks to identify any perturbation, or disease, and the therapies most likely to 'fix' the network.


MIT Technology Review

Intelligent Machines

Google Has Released an AI Tool That Makes Sense of Your Genome

AI tools could help us turn information gleaned from genetic sequencing into life-saving therapies.

The Artificial Intelligence market, for instance, is expected to reach $6.6 billion in 2021, at a compound annual growth rate of 42%. By 2020, it is expected that conditions such as cancer and diabetes will be diagnosed within minutes using cognitive systems. By 2025, AI systems are expected to be implemented in 90% of the hospitals in U.S., and in 60% of hospitals and insurance companies around the world, which will be able to deliver quality care to 70% of patients at a reduced cost.

Source: https://www.technologyreview.com/s/609647/google-has-released-an-ai-tool-that-makes-sense-of-your-genome/

11. BUSINESS MODEL, MONETISATION AND GROWTH OF LONGEVITY UNITED COMMUNITY AND ETERLY USER BASE

Longevity United will create a community and user base for Eterly. Meanwhile, Eterly will be responsible for the further development of the mobile app and will conduct R&D to provide the ecosystem with the best products, treatments and health-related services available. Together, Eterly and Longevity United will work on the further development of the ecosystem, including the Open Marketplace, blockchain, data sharing, gamification and monetisation aspects of the platform.

We have identified a number of ways in which we can monetize the Eterly project. In addition to our plans for revenue generation, new opportunities for interaction with users will continually be opened due to the potentially huge base of active clients that will download and use the app. We are aiming to have 1 million users in 1 year and at least 25 million users by year 5.

11.1. MONETISATION STRATEGY — PREMIUM APP SERVICES

Freemium model; market services for users - "premium upgrades" a recommendation engine tailored to a user's' personal profile.

By default, the Longevity United platform is free of charge. In the course of its interactions with the user, the AI elements of the app and backend will identify the personal needs of the user and offer them opportunities for enhanced advice and guidance to help them optimize their Longevity score. These upgrades will be marketed at the user, in the form of personalised and targeted offers, based on their personal needs.

Personal Coaching

- Tailored plans designed by top health professionals
- Celebrity / influencer plans
- 1-1 sessions, facetime
- Create groups with friends or discover special areas of interest

Full Profile Personalisation

- Add and store extra data
- Create calendars, reminders, diarise programs
- Add family members

Supplement recommendation

- Advice on what supplements to take based on programmes chosen and daily monitoring data.
- Sign up for automated monthly delivery of supplements
- Gain access to exclusive deals
- Be first to hear about new supplements / drug developments

Personal Biomarkers

- Extra profiling capabilities
- Feedback from PA / medical staff
- Receive personalised reports
- Request specific services, feedback and plans

We are aiming to have 1 million users in 1 year and 25 million users in 5 years, and estimating that 10% of them will use premium services. Estimated revenues by year 1 = $0.25m, year 5 = $12.5m

11.2. MONETISATION STRATEGY — OPEN MARKETPLACE

Curated and recommended products for users to purchase e.g. devices, supplements, health products based on expert medical advice, and peer reviews

Selected & Approved partners

- Curated and approved by Longevity United
- Partners must apply to be featured on platform
- Amazon style store for health products
- Rated internally by Longevity United and also by users using star ratings

Partner with health supplement firms

- Firms invited to join platform
- Featured sections for different product providers
- Tokens available to spend on some products
- Longevity United only exclusive offers and deals

Personalised exclusive packages

- Tied into premium app services
- Opportunity to purchase discounted packages delivered each month
- Gain loyalty bonuses = extra tokens to spend
- Newsletters, extra content and exclusive deals similar to Amazon Prime membership

Peer & Professional reviews

- Users can submit product reviews and use star rating system
- Most active reviewers rewarded with tokens
- Consistently poorly reviewed products removed from platform
- Upvote / downvote products

Sales commission or profit sharing arrangement
Estimated revenues by year 1 = $0.5m, rising to $25m by year 5

11.3. MONETISATION STRATEGY — INSURANCE & CORPORATE WELLNESS

Sponsored programs for a healthier lifestyle and corporate health programs on contract or subscription basis. Longevity United is the perfect corporate partner with constant monitoring & continuous improvement.
Corporates now there are many actively sponsored programs. These are programs for healthy citizens' lifestyle and corporate health programs. Here, Longevity United can offer extraordinary and highly effective solutions, helping clients of insurance companies improve the health of their clients and prolong their lives. The form of partnership may differ for different clients. It can be a contract basis for a project or a monthly subscription to use the platform.
Our unique monetization model gives not only the possibility of multi-channel revenue, but also absolutely free access to a huge user base. The user base of the Longevity United platform has potential to scale rapidly, and increase exponentially in size. This is why we feel the primary task of the platform is continuous improvement and growth; so long as this is the case, the size of the addressable market, both B2B and B2C, will keep growing also.

Insurers & Corporates can outsource health tracking

- Data rich firms lack AI resource & prefer to outsource health tracking
- Eterly assumes role of health tracker and data store
- Data collected from both firm and patient
- Eterly issues reminders, prompts, to take medication or complete health plan

White Label solution

- Firms can have their own-branded versions of Longevity United platform for a fee or encourage users to download Eterly
- Firms can provide own-brand fitness regimes
- Increased flexibility
- Gives firms credibility and advantage over competition

Incentivisation

- Firms can offer Longevity United or own brand tokens for successfully completing health plans
- Firms can introduce gamification - be the best on your peer group!
- Rewards for uploading extra health and fitness data
- Reduced premiums, enhanced job prospects

Tailored programs

- Firms can use Longevity United platform to develop specific programs for employees / policy holders
- Companies can use patient / subject data to tweak programs
- Longevity United can assist with plan development with vast medical database
- Seamless integration between platform and white label holder / Longevity United corporate partner

Potential revenues based on 3 tiers of white label partnership priced $5k, $20k and $50k respectively estimated $1m by end year 2, rising to $10m by year 5.

11.4. MONETISATION STRATEGY — PARTNER WITH DEVICE MANUFACTURERS

Eterly's "white label" or branded solution will come with free support and development, paid for in sales or fixed commissions. Today's health and fitness device makers fall into 4 categories: All 4 sectors increasingly beginning to merge with the health sector.

Since Eterly is fully compatible with the bluetooth sensors used by fitness trackers, we can offer an Eterly White label version to smart device manufacturers. Thus, we offer a unique software solution, as well as support and further development of the platform. In its turn, the smart device partner pays Longevity United a percentage of the device sales or a fixed commission on a monthly basis.

Lifestyle

- Most advanced segment for device makers
- Monitoring fitness, activity and sports
- Large number of data points to capture - increasing all the time
- Device makers benefit from Longevity United superior storage and processing power

Diagnostics

- Non-invasive devices providing health information
- E.g. glucose, cardiovascular, event, pregnancy, obstetrics, fetal, sleep and neurological.
- Device makers benefit from Eterly medical and scientific knowhow
- Longevity United gives device makers opportunity to recommend treatments via Open Marketplace

Therapeutics

- Wearables capable of monitoring disease states
- Data storage and providing feedback
- Respiratory information, insulin and pain management.
- Highly compatible with Longevity United platform; discover better drugs and treatments

Injury prevention

- Can include measuring body movements, wearable sensing garments, fall detection.
- Can also include rehabilitations
- Longevity United data store can be mined for athlete or patient guidance and recommendations

There are several scenarios of profit generation in cooperation with device manufacturers, but we will consider this ruote specifically after some additional research.

11.5 MONETISATION STRATEGY — PARTNER WITH MICROSOFT TO ENABLE HEALTH DATA SHARING WITH SELECTED THIRD PARTIES

Longevity United will have the capability to act as a storage facility for user's personal health data, and users will be given full control of their data, as well as the opportunity to boost their longevity score and earn longevity tokens by regularly submitting data to Eterly's R&D department for sharing with third parties.

It is important to note that all data used will be completely anonymised and users' details will not be shared with any third parties without their express permission. It i sour ambition for Longevity United the most secure and permissioned blockchain storage facility in the global healthcare space.

Longevity United will act as the mediator between users and third parties. Third parties will typically be interested in studying biomarker data in order to refine their product offerings and develop new products. Typical clients could be drug development companies, medical research facilities and global bio-pharmaceutical companies.

In order to ensure the highest standards and levels of integrity in this aspect of the platform, Longevity United has chosen to partner with Microsoft, becoming an accredited partner. This relationship will allow Longevity United to access training and resources, and as the volume of data grows, Longevity United will also gain access to Microsoft's sales network, exponentially increasing the addressable market size and scale of Longevity United's sales operations thanks to Microsoft's thousands-strong sales network.

it is also worth noting that all of our users are welcomed to participate in our data sharing operations and we can teach them precisely how to self-manage their health profiles. We are committed to providing our users with all the tools and insights they need to successfully become super-users, and as such, extremely valuable assets in their own right, who can find research partners through Longevity United's platform and promote themselves with essential legal, administrative and financial guidance, in a safe and secure way.

Completing recommended tasks

- Carrying out suggested fitness programs
- Participating in specific trials
- Improving longevity score
- Following courses of treatment

Volunteering activity data

- Data capture from wearable devices
- Recording food and nutrients intake
- Sleep patterns
- Continuous monitoring

Submitting medical history data

Data secured on permissioned blockchain for complete security
Guaranteed anonymity
User must give express permission
Specified data i.e. close up images, samples

Approved third parties only

- Partners curated and selected by independent experts acting on Longevity United's behalf
- User earns tokens in exchange for data sharing
- Data used for R&D, biomarker analysis, drug development, study of diseases

Data sharing revenues
Estimated revenues $0.5m by year 1, rising beyond $50m according to best scenario by year 5.

11.6 MONETISATION STRATEGY — SOFTWARE ALGORITHM SALES

As part of its offering, Longevity United will give software and algorithm developers the opportunity to upload projects to the platform / ecosystem. In effect, Longevity United's platform will become like an App Store, giving users the opportunity to browse the different programs and download and use them. All of the projects will have a health focus and the creators will be able to earn commission on each download. Longevity United will monitor and provide encouragement and access to resources to help the developers improve their products, and may also provide financial support and / or investment to particularly successful or ground breaking projects.

App Store

- Health focused software projects uploaded to the platform
- Users browse and select projects to download and use
- Projects incorporated into Longevity United platform and given Eterly branding
- Review and rating system introduced; initial review by experts then users

Commision basis

- Project developers earn commission on each download
- Longevity United takes commission / payment for access to platform, branding and promotion
- Developers retain rights to software

Performance

- Performance of projects monitored by Longevity United
- Performance data and download numbers communicated to project developers
- Real time feedback and suggestions for improvement collated and passed to developers

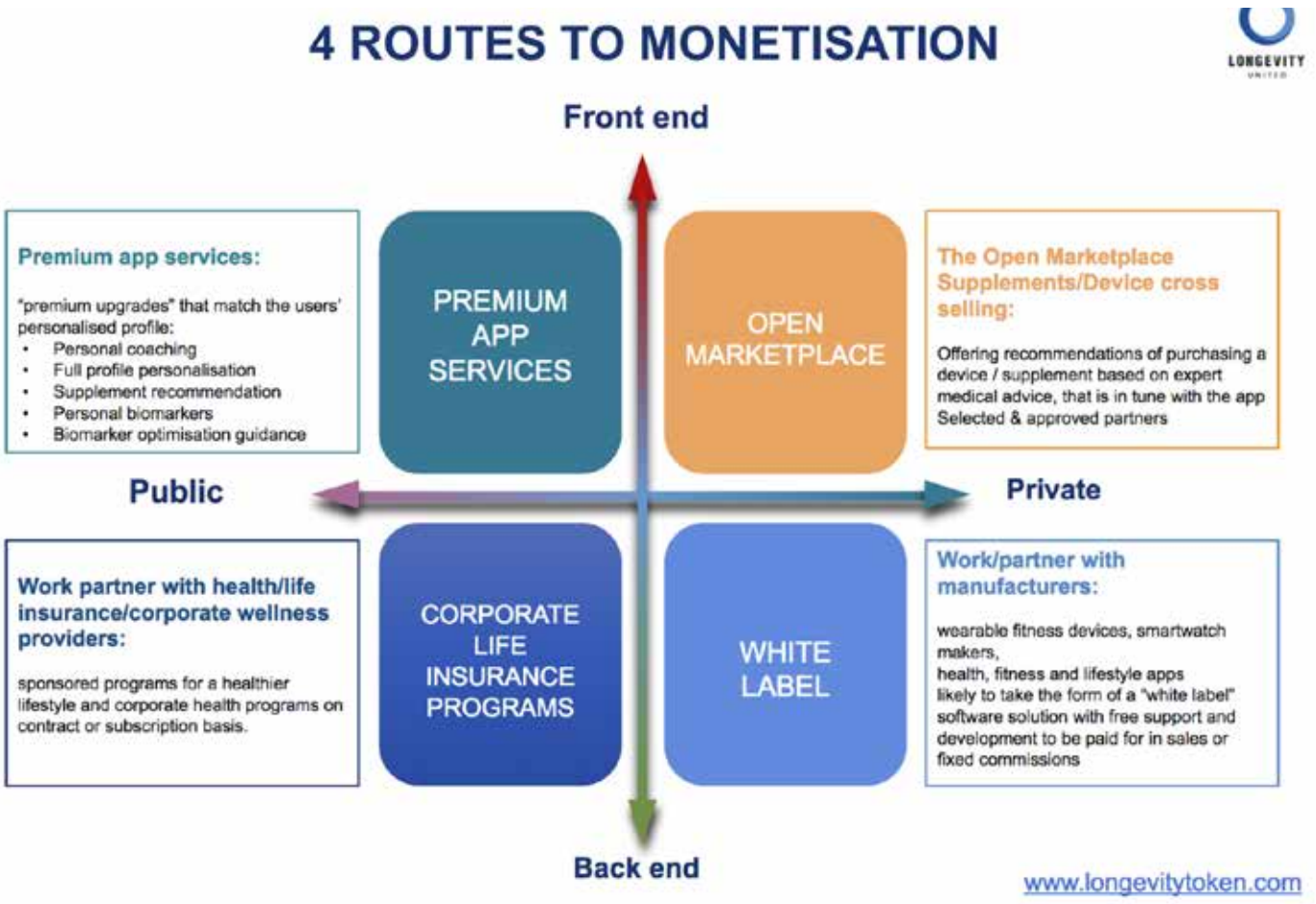
Acquire rights

- Longevity United will monitor for successful or standout projects
- Longevity United may make offers to developers to obtain rights to projects
- Access to follow-on funding and investment
- Access to network of contacts and marketing and PR tools

Marketplace for Data Algorithms
Estimated revenues $0.25m by year 1, rising beyond $10m according to best scenario by year 5.

Summary

Our revenue projections are ambitious but underline the global scale and significance of Longevity United's project. By the end of year 1 we will have in place 6 core teams dedicated to ensuring the ecosystem can become not only self-sustaining, but profitable. We expect this to happen quickly and certainly within a 3-5 year timeframe. Based on our revenue projections we believe a worst case scenario would be to achieve revenues circa $0.7mln pcm by end of year 1, with a more optimistic scenario being revenues of $1.5mln. Going forward and accordingly to the projections of the client base growth, it is our belief that capitalization in excess of $1bln can be achieved by end of year 3 and in excess of $5bln by end of year 5.
It is important to note that as we ramp up our monetisation operations we will not lose sight of the main objectives of the platform; to educate the global population about their health, through advancements in technology, in precision health and in the science of longevity.



12. BUSINESS DIVISIONS & DEVELOPMENT

Both Longevity United and Eterly will be required to rapidly scale their operations to meet growth targets. As such, the management team will take responsibility for the building out of 6 business divisions, listed below.

12.1 DEVELOPMENT TEAM

The development team will be focused on building out both the Eterly app, making it compatible with wearable devices and capable of capturing daily activity data from individual users, and also the Longevity United blockchain based back end, which must be capable of accepting scientific data and research and merging it with daily user data to produce accurate and relevant recommendations about healthy lifestyle, as well as incorporating personal profiles and data storage, Open Marketplace and Developer / App Store. The dev team will make hires once the token sale is complete and by end of year 1 will number between 5-10 developers, expanding to 50+ by year 3. The development team will also be engaged in making it as easy as possible, using API's and building an open source interface for outside companies and developers to access the platform, and to create their own white label products.

12.2 RESEARCH TEAM

Research dept. members main responsibilities will be to source the best research and academics to contribute data and research to the Eterly platform. The work may also be outsourced to external consultancy. The research team will be expected to work closely with dev team to ensure data can be processed into the Eterly platform in a timely and accurate manner. Est. research team headcount (either outsourced or in-house) = 5 growing to 15-20 by mid year 2.

12.3 SALES TEAM

The sales team will be focused on driving Longevity United's monetisation strategy. This will include working closely with Microsoft (as detailed earlier in this paper) to create sales channels across all 6 monetisation pillars. The work will initially consist of creating global contacts databases which will be used to communicate Longevity United's products and services to as wide an audience as possible, and to build a sales infrastructure that will be capable of onboarding new customers on a subscription, commission or up-front payment basis. The sales team will be divided across corporate, developer, pharma, user, device manufacturers and in-house / platform sales. The sales team recruitment drive will begin once the pre-ICI is complete, with 10 initial hires. By Year 3 we expect to increase to 50 staff and will continue to grow in line with the growth of the different revenue channels.

12.4 MARKETING & PR TEAM

The marketing team will focus in the initial stages in driving recognition of Eterly app and building the user base to 500,000 by end of year 1. The department will also in the longer term focus on building relationships with major corporates to partner on corporate wellness programs (working with sales team) and scientific establishments to create powerful centres of learning with the Eterly platform at its heart. Marketing team headcount is likely to mirror sales growth albeit smaller in size, with budget available for additional special projects teams either outsourced or brought in house. The marketing team will also prepare all literature related to Longevity United and Eterly. The PR element will try to secure global media opportunities and develop its own channels including Instagram, Twitter, Facebook, YouTube, Snapchat and all other relevant channels. It is anticipated that the Marketing team will use a global network of influencers and work has already begun in earnest in this regard.

- Network marketing (recommendation based), via discounts, service bonuses, and social media;
- Commission based sales from expert business development; persons (e.g. doctors) for products and services;
- Influencers, role models, and celebrity endorsements across various demographics; celebrity fitness programs available for use by all;
- Gamification, incentivising users to improve their results; competing against their peers, joining groups or leagues, setting or being set goals. Unlocking new products and services;
- Users awarded with tokens/ for achieving certain milestones e.g. weight loss, less salt in diet, and improvement of personal Longevity score.

12.5 SPECIAL PROJECTS TEAM

Special projects teams will be invited to work on major ground-breaking projects in the fields of anti-aging, disease prevention and longevity. The team will most likely initially consist of specialist recruiters headhunting top academics and building relationships with top academic institutions to provide the talent the Eterly platform will require to stay ahead of the competition.

12.6 LEGAL TEAM

Initially legal team will consist of a small internal team overseeing operations, as well as outsourcing to major legal firms that are specialists with the healthcare and healthtech fields. The legal team will focus on ensuring all of Longevity United's business operations are compliant with the relevant regulations. As the complexity of the project grows however the legal requirements are likely to become more challenging and significant additional budget and headcount may be required to be added.

2.7 BUSINESS DEVELOPMENT ROADMAP

Longevity United	Eterly Mobile App
Current Stage	
Token Pre-Sale - Blockchain platform development begins, Start of Token Pre-Sale Campaign. Supervision of Token Sale (also employing outside help); ensuring all elements of business plan and execution of token sale are compliant and transparent. Appoint CMO to lead marketing division; concerted PR campaign to take place throughout Token Sale; marketing documentation circulated widely; social media channels established; appointment of community manager to handle Token Sale.	**Mobile App Version 2 (Beta Version)** delivered. Identify specific long term medical research partners. Global sales contact database designed and work begins. Sales strategy refined and division of labour across 6 monetisation pillars agreed.
3 Months / April - June	
Identify and approach influencers within longevity industry and open dialogue who wish to learn more about Longevity United and become involved with project; approach partners and initiate discussions to establish best fit of research partner to platform; discuss awarding of tokens to facilitate providing research direct to platform. Marketing material circulation now turns to the Token Sale; multiple PR and media releases throughout campaign; round the clock monitoring of social media channels to ensure rapid response to questions and launch of media bounty scheme. Follow up sessions with selected partners; token award negotiations continue; first partnerships announced. Research channels firmly established between Longevity United and its research partners; Global legal review of all business to be conducted evaluating needs of each department and legal implications of launching Longevity United globally. Further hires made. Initial testing stage and advanced discussions with potential partners.	Launch of Mobile App (Version 3.0) aimed at retaining users and increasing their number. User feedback helps team discover design and functionality "blind spots". Feedback used to commercially and developmentally de-risk the product and deliver optimal product to the user. Social element introduced enabling competitive / gamification features. This will entail more active use of the application, and a viral effect is likely to emerge. Personalised avatars of each new user to correlate with biological age estimate. Global marketing office established; marketing split to reflect different aims of platform with major emphasis on global medical community as well as advertising different elements of the overall business model; recruitment drive to hire hungry, passionate marketers with a medical or science background. first sales only personnel hired to work under team leaders; sales office location decided; work divided into separate projects reflecting different pillars of monetisation.
6 Months / June- October	
Marketing continues to promote the several arms of Longevity United globally; offices established on several different countries across different continents. Data now stored within Longevity United platform with users able to access data, curated and refined by AI and independent experts for their health improvement. Investigations into all aspects of LU's relationship with global pharma industry, data sharing with third parties, platform sales, blockchain security, data protection, medical treatment programmes, medical advice. Draft agreements in place for formalising relationships with hospitals & private health clinics; global review complete and action areas addressed - complete clarity concerning all legal implications of running a platform such as longevity United and App such as Eterly.	Launch of app (Version 4.0) introduces interaction with health care institutions. Personal data retrieval from hospital databases with user consent. Tracking user progress towards health. Data processed by neural networks, increasing its usefulness. Personal programs, based on analysis of personal lifestyle and the data received from health care institutions. Operations simplified, yet optimised. "Freemium" model - paying more for enhanced services introduced. Additional hires; work alongside other teams to review areas of longevity that are in most need of new disruptive techniques; identify investment opportunities i.e. new startups, academic papers or collaborative projects.

1 Year

Global legal review of all business to be conducted evaluating needs of each department and legal implications of launching Longevity United globally. Further hires made. Investigations into all aspects of Longevity United relationship with global pharma industry, data sharing with third parties, platform sales, blockchain security, data protection, medical treatment programmes, medical advice.
Expansion of in-platform research conducted and of products and services offered through marketplace; global partnerships with scientific institutions, pharma and biomedical companies established.

Launch of Mobile App (Version 5.0)
Eterly becomes not just an app, but a separate innovative back-end technology, aimed at combating the struggle with ageing and based on artificial intelligence. Monetization strategy implemented.
The Eterly team begins a headcount push, hiring more corporate scientists and e.g. Fitbit and Jawbone research-and-development departments.
The possibility to control the transactions between the scientists and users becomes available. Series A fundraising begins.

13. ETERLY MOBILE APP - COMPETITOR ANALYSIS

As with any industry, there is competition in the healthtech, and health and fitness space as well as within Longevity research. We welcome all competitors; the development of companies with similar interests is always an excellent motivator.

COMPANY	LIFE EXTENSION ALGORITHM	AI	PERSONAL MEDICINE	AUTOMATED PERSONAL ASSISTANCE	DAILY ADVICE	PROGRESS TRACKER	SLEEP TECH	TOTAL FUNDING AMOUNT	USERS
Eterly	+	+	+	+	+	+	+	N/A	3500 users focus group Beta-testing
Fitbit					+	+	+	$66 mil	10-50 mil
MyChart			+	+				N/A	1-5 mil
Lark		+			+	+	+	$21.1 mil	0.1-0.5 mil
Flo		+	+		+	+		$6 mil	10-50 mil
HRV4Training					+	+		N/A	1,000 - 5,000
iCare Health Monitor			+					N/A	1-5 mil
Healthy 365					+	+		N/A	0.5-1 mil
Addapp Insights			+	+	+	+		$1.8 mil	
Gyrosco			+		+	+	+	$1.3 mil	0.5-1 mil
Health Lab Diabetes Management			+	+	+	+	+	£3.9 mil	1000 – 5000
Babylon		+	+	+			+	$85 ml	10000
iHeart			+					N/A	N/A
Lose it!			+	+		+		$5.5 mil	5-10 mil
Noom Coach			+	+		+		$25.9 mil	10-50 mil
Sleep Time			+	+		+	+	$3.4 mil	1-5 mil

1. Babylon has created a mobile application which allows patients to schedule and make video consultations with professional doctors online, using their smartphone. Babylon's core value is providing people with qualitative medical help. In contrast, Eterly directs activity towards health and fitness, anti-aging and Longevity.

2. Fitbit is a company dedicated to the health and fitness field and is building products that help transform people's lives. Fitbit develops products such as: activity trackers, wireless-enabled wearable technology devices that measure data such as the number of steps walked, heart rate, quality of sleep, steps climbed, and other personal metrics involved in fitness. Fitbit is a great health motivator. It tells you your fat burning zone, whether your heart rate reached cardio, and when you hit your peak. Compared to other apps (e.g. Eterly) Fitbit doesn't accept information about users' eating habits, vitamin intake and mood, in such a way as to make recommendations for a healthier life.

3. MyChart is an online health management tool that connects patients to portions of their electronic medical record, allowing them to schedule appointments, including lab work and mammograms; review test results; have a virtual visit with their provider; request a prescription renewal; send messages to the health care team; view and print medical information such as visit summaries, health history, medication lists and immunization schedules. MyChart is intended only to support the patient's relationship with their current or future medical professional. MyChart does not track user's activity progress or quality of sleep, or provide patients with daily advice.

4. Lark is the first artificial intelligence nurse to be used as a substitute live healthcare professional. Lark's A.I. Platform monitors and manages chronic diseases, providing lifelong changes to members and is able to offer every member unlimited 1-to-1 support from their Personal Lark Coach. The app is personalized to meet patients' needs and goals. Currently, Lark has four products on the market; aimed at wellness, diabetes prevention, diabetes management, and hypertension management.

5. Flo is a period tracker and ovulation calculator that uses artificial intelligence for the most accurate menstrual cycle predictions. Data-driven algorithms generate a personalized flow of useful tips & health insights: daily health insights; community-generated recommendations; analytical reports; interactive surveys; Flo assistant. Flo does not track user's activity or sleep and it addresses a very specific market.

6. HRV4Training is the only app providing advanced data analytics on the relation between physiological parameters, training and performance, directly in the app. HRV-based advice to optimize your goals, prevent overtraining and improve performance. HRV4Training is a way to measure how we react to stressors like a workout for example, and better understand how much time our body needs to get back to normal. It gives daily advice to users and provides them with insights on the relations between training intensity, recovery and performance. The disadvantage of HRV4Training is that it doesn't possess a life extension algorithm and it doesn't track sleep, or give personalised medicine information.

7. iCare Health Monitor is a mobile Internet company specializing in health services. iCare Health Monitor uses data to provide users with health warnings, and personalized sport and health services. The app claims to measure blood pressure, heart rate, blood lipids, blood oxygen, vision, colorblind, hearing, lung capacity, breath rate, and psychological index – all without any peripherals.

8. Healthy 365 is a health and diet tracking mobile application. The app enables users to track daily steps, and count and calculate the corresponding calories burned. It also helps to track daily food and drinks intake and the corresponding calories consumed.

9. Addapp Insights provides insight into user's well-being and helps improve factors like sleep, nutrition, fitness and mood. Connecting activity trackers and health apps to Addapp, the app analyzes all that data and gives daily, actionable insights and tips. Addapp is different from other applications because it analyzes all the data across services, not just the data collected by one app or device. The app is easy-to-understand through easy-to-read graphs.

10. Gyrosco is the best way to track sleep. The Sleep AI feature automatically detects when the user is asleep based on learning the user's daily behavior. It also tracks activities such as: running, cycling, gym workouts, & more. Gyrosco integrates with the best workout tracking apps and devices, like Strava, Runkeeper, Apple Watch and Fitbit. The app keeps track of computer activity, to make sure that the person is properly balancing work, sleep, and other time spent online. It tracks meditation and everything related to mental health—like sleep, work, yoga, and social media—to stay balanced and get reminders if the goals aren't achieved.

11. Health Lab Diabetes Management is designed to help people make better informed lifestyle choices, become further educated about their condition and adopt new behaviours. With the Health Lab - Diabetes Management app the user will get support through: personalised advice; clinically approved content; social support; and progress tracking. The app provides members with information about diabetes management; monitoring diet and nutrition and weight management in the form of articles and videos with the aim to keep you engaged and educate you about your condition on a daily basis.

12. iHeart, as its name implies, the product is focused on the discovery and elimination of problems within the cardiovascular system. The specialist device helps a human to define the speed of aortic pulse wave, frequency of heart muscle contraction and oxygen levels in the blood. iHeart is marketed as a tool which allows us to define the healthy age of a person.

13. Sleep Time by Azumio provides insight into the user's sleep patterns. By tracking user's level of movement throughout the night, Sleep Time generates customized sleep data in easy-to-read charts. The app learns how the user sleeps and wakes them up gradually during the lightest sleep phase, leaving users feeling refreshed, never drained. The app's usefulness is limited to tracking sleep patterns; nor does it provide daily advice.

14. Noom Coach is a weight loss and health app that uses mobile technology to help people lead healthier lives. The Noom Coach has a large food database to make it easy to log diet. It indicates whether a food is more or less calorie dense or nutritious through a color-coding system. It can also help users figure out the correct portion size and it can also track activity.

15. Lose It! is the industry-leading digital health and fitness platform that is focused on the proven principles of calorie tracking and community support for healthy, sustainable weight loss. Members track their daily food intake and fitness activity, and can create goals, start or join community activities and competitive challenges, connect activity trackers, access coaches, and more.

Despite the presence of some competition in this environment, the Longevity United project stays unique and combines the activities of the above companies plus many other scientific developments connected with health and Longevity.

As with any industry, there is competition in the health-tech, and health and fitness space as well as within Longevity research. Longevity United welcomes all competitors; the development of companies with similar interests is always an excellent motivator.

14. Eterly - Mobile App Development Roadmap

We have divided the Eterly app project into 5 simple and comprehensive phases. Once the fifth phase is complete our initial plans and milestones for the Eterly project will be accomplished.

VERSION 1.0

The first phase is to develop an application capable of being installed on mobile devices, and integrated into wear-resistant gadgets, such as fitness-trackers and smartwatches and smartphones.
Users will be able to share information with the app via the interactive chatbot or by navigating to the relevant section and manually inputting personal data, or by using a wearable device; Fitbit, for example, or Google Fit. Eterly will subsequently process the first data flows and begin to implement and coach using its built-in AI.

VERSION 2.0

Eterly is fully controlled by artificial intelligence with the capacity to act as the users' virtual personal trainer. The platform becomes able to employ its AI capabilities in determining the biological age of a person precisely.
The app supplies daily recommendations for improving health - what we might term a user's "biological renovation". Users will be able to share their achievements via social networks, through the app.
The number of users will grow, and because of this the application will increase the tempo of its self-learning.
Due to the feedback from users the platform will gradually become more prepared for the third phase. By this phase, the monetization model for the app will begin to crystallise.

VERSION 3.0

The third version is aimed at retaining users and increasing their number. Close interaction with users and feedback will help the team discover design and functionality "blind spots"; aspects of the app which prove to be inconvenient, unpopular or unworkable for users. This is an essential part of the development process - because ultimately it is the opinion of the user that matters the most.
Feedback will help to commercially and developmentally de-risk the product and deliver the optimal product to the user.
At this stage the social element will also come into play allowing enabling the promoting of the competitive / gamification element of the mode. This will entail more active use of the application, and a viral effect is likely to emerge.
A personalised avatar of each new user, which correlates itself with a person's biological age, will be created.

VERSION 4.0

This version introduces interaction with health care institutions. Personal data, examination results etc. will be retrieved from hospital databases. The possibility of tracking the user's progress, based on these results, will be available. The data received is processed by neural networks, thereby increasing its usefulness.
The users will be offered personal programs, based on analysis of personal lifestyle and the data received from health care institutions. The operation of Eterly is simplified, yet optimised. The process of engagement of a wider audience, with an interest in the "freemium" model - paying more for enhanced services, is started.

VERSION 5.0

Eterly becomes not just the application, but the separate innovative back-end technology, aimed at combating the struggle with ageing and based on artificial intelligence. The possibility of monetization, discussed earlier in this paper becomes available. The Eterly team begins a headcount push, hiring more corporate scientists and e.g. Fitbit and Jawbone research-and-development departments.
The possibility to control the transactions between the scientists and users becomes available.

WHERE ARE WE NOW?

Currently we have fully finished the first phase. We have the fully developed application with artificial intelligence. The data has been analysed and the products' strong and weak points discovered. Moreover, we developed a clear understanding of all functions, and all five phases.
The application is already capable of integrating to various devices and accepting data entered by the users.
The methodology of blockchain use, which is described in more details in "Eterly technologies" section, has been developed.

15. TOKEN SALE

- The Token sale is divided in two stages: Pre-Token Sale and Main Token Sale.
- Preliminary Token Sale is scheduled for March 22nd, 2018 and will last until June 1st, 2018.
- Main Token Sale will start on June 10th, 2018 and will last until July 10th, 2018.

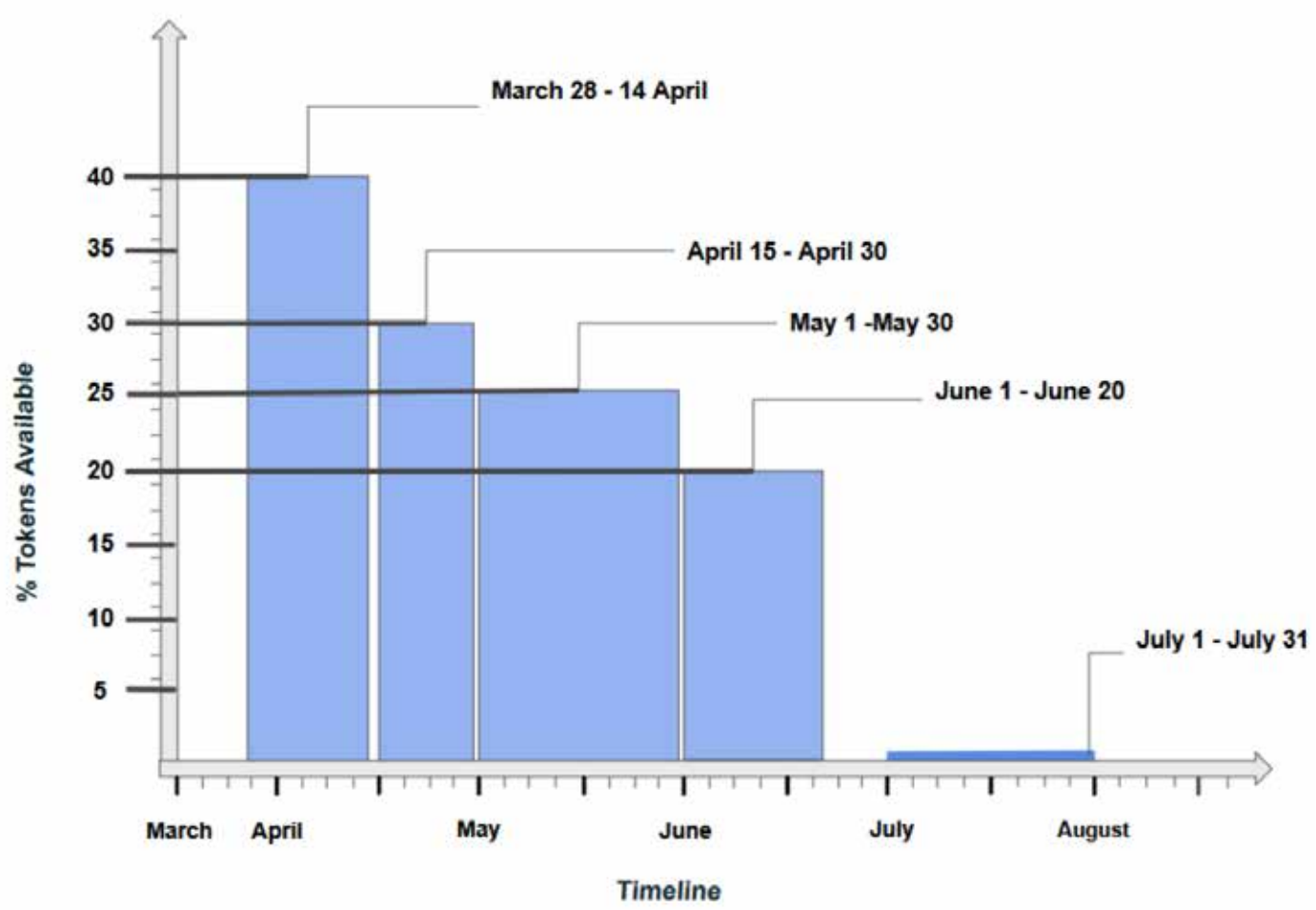
15.1. TOKEN PRE-SALE

Holding a preliminary Token Sale allows us to achieve several objectives at the same time.

- The first objective is to attract contributions that will help in the further development of the project.
- The second objective is to attract the attention of experts within the Longevity field, a key element of the realisation of the overall Longevity United project strategy
- The third objective is the qualitative preparation of the main process of obtaining further funding for the project i.e. the main Token Sale.

15.2. TOKEN SALE TIMELINE

Stage	Timeline	Discount
Tranche 1 (Pre-Sale)	March 28 - April 14	- 40%
Tranche 2 (Pre-Sale)	April 15 - April 30	- 30%
Tranche 3 (Pre-Sale)	May 1 - May 30	- 25%
Tranche 4 (Pre-Sale)	June 1 - June 20	- 20%
Tranche 5 (Main Token Sale)	July 1 - July 31	0%



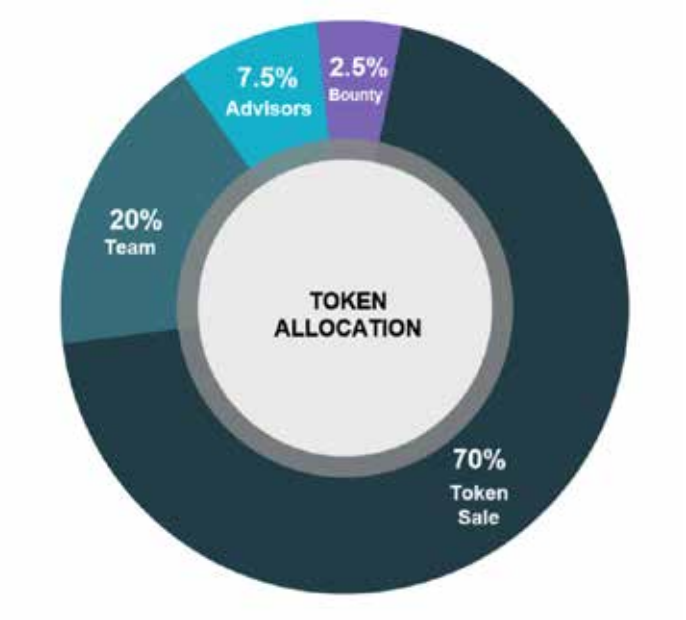
15.3 TOKEN SALE EVENT DETAILS

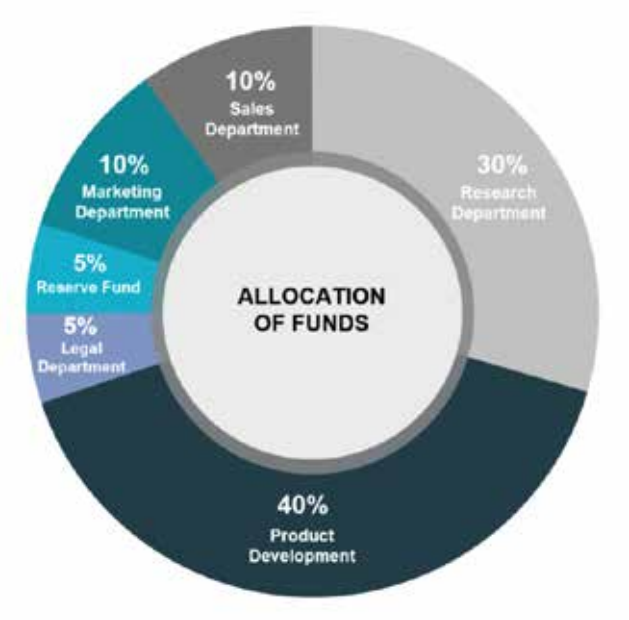
1. Token Name: Longevity Token
2. Token Symbol: LTY
3. Type: ERC20
4. Token features: utility token
5. Listing Price: USD $0.01
6. Tokens are issued by the smart contract upon request.
7. Soft Cap: USD $7,000,000
8. Hard Cap: USD $30,000,000

15.4 TOKEN ALLOCATION DETAILS

- 70% of LTY tokens issued during Token Sale will be allocated for sale.
- 30% of LTY tokens issued during Token Sale will be allocated for Team, founders, advisers, bounty, whereis:
  -20% of LTY tokens will be allocated for team and founders and will be vested over 2-year period to show our commitment to the overall success of Longevity United.
  -7,5% of LTY tokens will be allocated for advisers, including substantial scientific advisory and will be vested over 2 year period with a 6 months cliff.
  -2,5% of LTY tokens will be allocated for bounties and ambassadors/evangelist program and will be distributed 2 months after the completion of the Token Sale.
- The maximum amount of Longevity Tokens will be limited and the entire amount of tokens that could be issued in the future will be not more than two times bigger above the amount of LTY tokens issued during Token Sale.

Token sale	70%
Team	20%
Advisers	7,5%
Bounty	2,5%





15.5 LTY TOKENS MINING FEATURES

1) To accelerate a worldwide adoption of Longevity Tokens, LTY these tokens will be given by micro portions to users accordingly to the 5.4 (mining of Longevity Tokens).
2) Token emission model operates according to an activity and data-mining rewarding system, whereby users are granted LTY tokens for a variety of in-platform activities, including providing the platform with different kinds of personalized health data, encouraging other users to join the platform, regularly following the mobile app's recommendations, and successfully improving their health and biological age through continued use of the mobile app and ecosystem.

15.6 FUNDS ALLOCATION

Product Development	40%
Research Department	30%
Sales Department	10%
Marketing Department	10%
Reserve Fund	5%
Legal department	5%

16. THE TEAM

ANDREW AHACHINSKY
CEO & Founder

Andrew's passion for fitness and the pursuit of a healthier, longer life is the driving force behind the creation of Eterly. Family health problems inspired Andrew to try to find a better way to discover personalised health treatments, and he made it his mission to create an all-encompassing solution that would leverage the most advanced medical thinking and technology, to benefit as many people as possible. The result of 4 years hard work, across 3 continents, several hospitals and universities, and an unforgettable deep-dive into the healthy longevity industry, is Eterly. Andrew's drive, energy and focus pushes the whole team to achieve more.

Andrew has been involved in the startup scene for 12+ years with a successful exit in 2008. His main health and fitness focus is Longevity and cardiovascular health tech. Recently interviewed by Forbes magazine, Andrew told teh magazine "I hit upon the idea of finding potential life extension solutions by optimising lifestyle factors; the concept of micro-managing one's health with the help of AI." Long may he continue the good work.

ILYA FOMENKO
<position>

Iya hails from the city of Orenburg in Russia, and graduated with honours from Orenburg State University in 2013 with a specialisation in Computers, complexes, systems and networks. He gained further knowledge and experience of deep technology and app development, graduating from e-Legion and Google's online school for Android developers, and completing courses through Udacity focused on Android development. A successful and standout freelance developer since 2015, Ilya's work can be found being celebrated on Github, and at the heart of several applications on the Google Play store. Ilya's formidable development skills extend to Android Data Binding, Android Architecture Components, Firebase, RxJava / RxAndroid, Glide, Picasso, Stripe and Fabric.

ILYA DOLGORUCHENKO
UI / UX Developer

Ilya is a talented Interface Designer, and a vastly experienced one too. He has 7 years experience and over 3 as a web UI / UX specialist. Ilya has 7 successful mobile applications under his belt, as well as his own personal projects which he updates lovingly, continuously improving and innovating. Ilya is a follower of the minimalist school of thought, and his work both informs and inspires others.

ZINNUR MURATOV
Chief Technology Officer

Zinnur takes the team lead function at Longevity United. Upon graduation from the Kazan Federal University Institute's Higher School of Information Technologies and Information Systems, Zinnur founded his first startup. He is now a veteran with 4 years of experience managing startups behind him, including the award winning Kazan Express and IT solution developer Rockylabs. Zinnur brings originality, experience and technological knowhow to the project, as well as exceptional management skills.

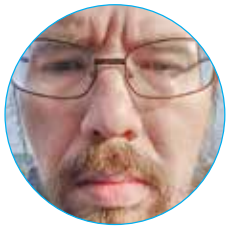
IVAN PANCHENKO
Big Data Analysis

Ivan graduated from Inopolis University, majoring in Data Science. A prolific author of scientific articles concerning his particular area of expertise, Machine learning, Ivan's work includes deep-dives into subjects such as detecting deceptive news on the text level, and How To Integrate An Artificial Personal Assistant Into Microservice Architecture. Ivan's skillset is unique and will form an invaluable part of the development of the Longevity United platform.
Linkedin;www.linkedin.com/in/i-panchenko

JACK GRABELSKY
Server Developer

Jack is a backend developer, an expert in integrating global health services, with the ability to tackle the most complex of tasks - which is probably what attracted him to Longevity United's project! Jack joins Longevity United an an experienced system automation engineer. He has built accounting and data exchange software and created sophisticated automation software for the web. Jack is a passionate developer, especially when it comes to Node.js, and mentoring at Coursera Full Stack Web development. Jack studied Computer Science at Sapir College, Israel.

Github;https://github.com/exeg
Linkedin:https://www.linkedin.com/in/evgeny-grabelsky-1ab07735/



IVAN SAVELYEV
Big Data Analysis

Ivan combines being a biophysicist with a strong proficiency in using IT technologies. Currently working at The Research Institute of Physiology at the University of Bogomolcev, Ivan has achieved fluency with Matlab, and Simulink. Speaking both English and Russian Ivan is a highly experienced remote worker and expert in Data Science and Health Data Analysis, who brings exceptional problem solving capabilities to the Longevity United team.

VICTOR SAVELYEV
Dietician

Professor at Yalta University, and head of the health-improving center of sanatorium "Ai-Danil" in Yalta, Victor brings a wealth of academic and professional experience to Longevity United's team. Victor has spent the bulk of his career studying and teaching on medicine and health matters. He has been Chief Physician, Consultant of the Center for Molecular Diagnostics, Doctor - consultant of the clinic of aesthetic medicine "Mediocell", Kiev, and Deputy Chief Physician in the Office of the President of Ukraine, Crimea, Yalta. An expert on nutrition and healthy lifestyle and with extensive experience as a leading dietician doctor in multiple hospitals in Ukraine, Victor is a leading authority when it comes to organization of medical services and compliance with the requirements of legislation in the field of health protection, development of medical programs, the formation of diagnostic and health algorithms; and treating patients, whilst developing individual programs using the principles of active longevity medicine.

DMITRIY KARACHENTSOV

iOS Developer

Dmitry is an iOS developer with over 4 years of development experience. Somewhat prolific, he has Released over 30 applications for iPhone and iPad that have collectively been downloaded by more than 100,000 users. Some of his most notable work includes development work on Homestretch AG, Zazmic, Stud or Dud, Mapster and Unistream payments. Dmitry's diverse experience will be an invaluable asset on a project as broad as this partnership between Eterly and Longevity United.

github: https://github.com/ne0nx
linkedin: https://www.linkedin.com/in/dmitriy-karachentsov-01a36399

EDMUND INGHAM

Communications Director

Edmund is the team's PR, Communications & Strategy expert. Edmund has worked with startups for more than 5 years, hellping them develop their communications strategies and gaining global media coverage for his clients. Having written for several leading publications, covering entrepreneurs, Edmund made the switch to PR to work more closely with early stage companies and experience the thrill of building a company from the ground up. Sandwiched between his career in the media, Edmund spent nearly a decade in the fund management and investment banking industry as a financial and risk analyst - perfectly equipping him to evaluate and assess the true value of a company. He chose to join Eterly having been inspired by the team's desire to build the "Google, Amazon, and Facebook of Health all rolled into one, with a genuine desire to solve one of the world's biggest problems for teh benefit of our society."

KIRILL VASIN

Data Research Scientist

Kirill joins Eterly's team with an outstanding academic record as well as an exceptional talent for research. Besides being Eterly's in-house medical research scientist, Kirill works at the Research and Clinical Institute For Pediatrics at the Pirigov Russian National Resarch Medical University in Moscow, and at Moscow's Mental Health Research Center. His work involves cytogenetic analysis of chromosomes, DNA Probes, and the cultivation of bacteria with built-in human DNA. In short, Kirill is pushing teh boundaries of scence beyond what has been thought possible, and as such is teh perfect addition to Longevity United. A one-man brains trust who can help the project break new ground.

MAKSIMOVA VERA TSERENOVNA

Nutritionist

Vera is a biological research scientist. She graduated from the pharmaceutical faculty of Pirogov Russian National Research Medical University. At present Vera works as a chemist in the laboratory of bioequivalence evaluation of drugs. Before that, for two years she engaged in the development of methods for quality control of inhalation forms. Vera's main areas of research focus are personalized medicine; health and lifestyle; aging; proper nutrition; and the prolongation of life.

17. BOARD OF ADVISORS

GIOVANNI SANTOSTASI, DEEPWAVE

Adviser on SleepTech aspect of the platform.

Research Scientist at Northwestern University. Published author. Expert in fields of computational neuroscience, neural network, and biophysics.

ALEXEY MOSKALEV

Advisor: Longevity biomarkers tracking and nutrition.

Professor of MPTI, Author of 120 Years Is Only The Beginning. Head of the Laboratory of Molecular radiobiology and gerontology at Komi Science Institute of Biology. Head of the Department of Ecology and Professor at Syktvkar State University.

DMITRY KAMINSKIY

Adviser on strategic partnerships and investment.

Managing Partner at Deep Knowledge Ventures.
Creator of 123 Years $ 1 million Prize for Life Record.
Frequent speaker on the topics of AI and Longevity. During the last year he spoke at conferences organized in London by The Economist "Aging Societies and The Business of Longevity", Financial Times "Global Pharmaceutical and Biotechnology Conference", at the "Precision Medicine World Conference" in Silicon Valley, as well as several others at Oxford and Cambridge Universities.

JOSE LUIS CORDEIRO

Fellow, World Academy of Art and Science

Jose studied at the Massachusetts Institute of Technology (MIT) in Cambridge, USA, where he earned his Bachelor of Science (B.Sc.) and Master of Science (M.Sc.) degrees in Mechanical Engineering, with a minor in Economics and Languages. He later studied International Economics and Comparative Politics at Georgetown University in Washington, USA, and then obtained his Masters of Business Administration (MBA) at the Institut Europ en d' Administration des Affaires (INSEAD) in Fontainebleau, France, where he majored in Finance and Globalization. Jos is fellow at the World Academy of Art and Science (WAAS), chair of the Venezuelan Node of the Millennium Project, Visiting Research Fellow at the Institute of Developing Economies (IDE – JETRO) in Tokyo, Japan, and Teaching Fellow at Singularity University (SU) in Silicon Valley, USA. He is also an independent consultant, writer, researcher, professor and "tireless traveler". He has lectured as an Invited Professor at several major institutions, from MIT in the USA and Sophia University in Japan to the Institute for Higher Studies in Administration (IESA) and the Central University of Venezuela (UCV), where he created the first formal courses of Futures Studies ("Prospectiva") and Austrian School of Economics in Venezuela.

ILIA STAMBLER

Advisor on biomarkers of aging and global longevity policy

Ilia Stambler, PhD, is Chief Science Officer of "Vetek" (Seniority) Association – The Senior Citizens Movement (Israel). He received his PhD at the Department of Science, Technology and Society, Bar Ilan University, Israel. His research has focused on the historical and social implications of aging and life extension research. He is also involved in mathematical modeling of aging and aging-related diseases. He is the author of A History of Life-extensionism in the Twentieth Century and Longevity Promotion: Multidisciplinary Perspectives. He is actively involved in advocacy for aging and longevity research, and is chair of the Israeli Longevity Alliance and executive committee member of the International Society on Aging and Disease. His papers have appeared in Progress in Neurobiology, Aging and Disease, Cancer Detection and Prevention, Rejuvenation Research, Current Aging Science, Global Aging, Mechanisms of Ageing and Development, Frontiers in Genetics, Geroscience, and other journals.

FRANCO CORTESE

Advisor on biomarkers of aging

Franco Cortese is the Deputy Director of the Biogerontology Research Foundation. He is the author of numerous scientific articles in peer-reviewed journals, including Aging, Oncotarget, Human Gene Therapy, Rejuvenation Research, Translational Neurodegeneration and The Journal of Gerontology Series A: Biological and Medical Sciences. His affiliations include Affiliate Scholar at the Institute for Ethics & Emerging Technologies, Scientific Advisor for Lifeboat Foundation (Life Extension Advisory Board and Futurism Advisory Board), and Reviewer for the Global Futures Intelligence System at The Millennium Project.

18. CONCLUSION AND CLOSING REMARKS

We are entering a new age of healthcare, an age in which medical intervention means prevention rather than cure.

The study of aging is driving this change. As such the longevity industry is the first to take advantage of all of the technical tools at the disposal of scientists, medical health practitioners, and research centres.

We have listed many of them here in this White Paper: personalised and P3 medicine, for example. Stem cell technology and regenerative medicine. The block-chain, data sharing, apps and using anonymised data to establish useful, actionable biomarkers, improve drug development, and enhance traditional courses of treatment, therapies, and anti-aging products. We have shown how each technique will shape and influence both the healthcare industry as a whole, and our app, and ecosystem.

AI, in the form of machine learning and deep learning, for example, will oil the wheels of the entire platform, synergistically linking different areas of captured and stored data; from medical research, to drug develop-ment, to personal health information - in super quick time.

Blockchain technology will be employed to create indelible, secure, and permissioned data storage. The power of Eterly's application lies in its ability to be technologically superior to its rivals; interactive and transparent; capable of integrating seamlessly with all forms of wearable tech; and yet engaging, dynamic and intuitive enough to inspire millions of users to use the app, and subsequently the ecosystem, on a daily basis.

By developing the Eterly app and the Longevity Plat-form in this way we are attempting to bring the science of healthy longevity to the masses. As we stated in our introduction, the dream of longer life was once a dream shared only by an elite few members of society. Now, however, thanks to advances in technology, medicine, science, and society, the knowledge that underpins Longevity can be made available to the masses.

Social media has taught us that we can unite disparate communities, addressing all of their concerns simulta-neously. But to date, nobody has attempted to do this successfully on behalf of the global healthcare industry. Of course, attempts have been made, through projects such as Obamacare, or initiatives such as NHS Online or NHS Choices in the UK, but Eterly, in tandem with the blockchain, can create a decentralised platform that is operated and controlled by its stakeholders, in much the same way as Facebook, Amazon, or Apple operates. [19]

This is the next technological frontier for global health-care. It is imperative that people have control over, and easy access to their own medical health data, informed by the latest scientific and medical research, and that they are given the option to share this data for the sake of improving and micro-managing their own health.

With knowledge comes power. Longevity United is about delivering that knowledge through an ecosys-tem that people find relatable and easy to navigate. Some will use the platform more than others: There will be highly engaged super-users, reaping the benefits of their engagement through tokens that unlock extra products and services, and casual users, steadily gain-ing information and learning about their health.

There will also be a community of medical health experts, researchers and scientists, curating the plat-form, recommending products and enhancing the users knowledge through regular reporting and data submis-sions. Although much of the platform will be automated using AI, these contributors will form an invaluable and essential part of the eco-system and help Longevity United reach its stated goals.

Finally, the medical health industry and global pharma industry will find Longevity United a source of valuable information from where they can drive their businesses forward. Likewise, over the longer term, corporates, in-surance firms and even governments will, we anticipate, be especially keen to engage with Longevity United.

It is our hope that Longevity United and Eterly's joint venture will deliver the ultimate health ecosystem. Trans-parent, secure, ground-breaking, and self-sustaining.

And we sincerely hope that after reviewing this docu-ment, you are in agreement with us.

19. LEGAL DISCLAIMER

This paper is for information purposes only and is not a statement of future intent.
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LTY tokens do not represent or confer any ownership right or stake, share, security, or equivalent rights, or any right to receive dividends, other payments, intellectual property rights, or any other form of participation in or relating to the project described in this white paper and/or in or any of its affiliates. The holders of LTY token are only entitled to use products as described in this document if successfully developed.

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Any plans, projections or forecasts mentioned in this paper may not be achieved due to multiple risk factors including without limitation defects in technology developments, legal or regulatory exposure, market volatility, sector volatility, corporate actions, or the unavailability of complete and accurate information.

All LTY information contained in this document is intended to be indicative only and is not a statement of Longevity United intentions. Any such information may be varied by Longevity United prior to the TSE. If so, any new documentation will supersede this document and be available at https://Longevitytoken.com/

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