# ARDA™

*Smart Training Community*

**ARDA AI COACHING PLATFORM WHITE PAPER (ver2.0)**

Performance Lab Technologies Ltd
19 Byron Avenue, Takapuna, Auckland 0622, New Zealand
email: info@joinarda.com

# TABLE OF CONTENTS

# DISCLAIMERS

ALL LEGAL TERMS AND CONDITIONS GOVERNING THE SUBSCRIPTION OF ARDAT ROUND A TOKENS AND/OR ARDAT TOKENS (EACH, AS REFERRED TO BELOW) ARE CONTAINED IN THE RELEVANT SUBSCRIPTION AGREEMENTS THAT APPLICANTS WILL ENTER INTO WITH THE RELEVANT ISSUING ENTITY. THIS DOCUMENT CONTAINS GENERAL PUBLICITY AND REFERENCE MATERIALS IN RESPECT OF THE ARDA PLATFORM, ARDAT ROUND A TOKENS AND/OR ARDAT TOKENS, AND IS NOT INTENDED TO, AND DOES NOT, CONSTITUTE ANY REPRESENTATION OR WARRANTY. STATEMENTS IN THIS DOCUMENT (INCLUDING BUT NOT LIMITED TO ANY PRODUCT CLAIM IN RESPECT OF ANY PRODUCT (WHETHER PROVIDED BY A THIRD PARTY OR OTHERWISE)) MAY NOT HAVE NECESSARILY OR ADEQUATELY BEEN INDEPENDENTLY VERIFIED OR SUPPORTED BY RESEARCH, AND YOU ARE REQUIRED TO EXERCISE YOUR OWN DUE DILIGENCE AND JUDGMENT IN RELATION TO SUCH STATEMENTS, NONE OF WHICH SHOULD BE CONSTRUED OR DEEMED TO CREATE ANY RIGHT, EXPECTATION, ENTITLEMENT OR BE CONSTRUED AS IMPOSING ANY DUTY, LABILITY OR OBLIGATION OF ANY KIND.

IN SOME JURISDICTIONS, THE AVAILABILITY TO USERS OF ANY APPLICATIONS OR FUNCTIONALITIES IN THE ARDA PLATFORM AND ANY SERVICES, FEATURES OR PRODUCTS, IF DEVELOPED AS DESCRIBED IN THIS DOCUMENT (OR WITH VARIATIONS AS MAY BE), MAY BE REGULATED BY APPLICABLE LAW AND REGULATION AND BY THE ACTIONS OF GOVERNMENTAL AUTHORITIES INCLUDING REGULATORS (INCLUDING BUT NOT LIMITED TO HEALTHCARE PRODUCT REGISTRATION AND LICENSING AND ANY OTHER LICENSING, REGULATORY OR TAX REQUIREMENTS, DATA PRIVACY OR DATA PROTECTION REGULATIONS, TELEMARKETING REGULATIONS OR RESTRICTIONS ETC), AND HENCE NOT ALL SUCH SERVICES, FEATURES OR PRODUCTS, IF DEVELOPED AS DESCRIBED IN THIS DOCUMENT (OR WITH VARIATIONS AS MAY BE), MAY BE MADE AVAILABLE TO USERS IN A PARTICULAR JURISDICTION, OR, IF MADE AVAILABLE, MAY BE SUBJECT TO ADDITIONAL MODIFICATIONS, REQUIREMENTS, LIMITATIONS, RESTRICTIONS, TERMS OR OTHER CONDITIONS. PLEASE REVIEW AND CONSIDER CAREFULLY THE RISK FACTORS (WHETHER IN RELATION TO THE ARDA PLATFORM, THE ARDAT ROUND A TOKENS, THE ARDAT TOKENS OR OTHERWISE) AS DESCRIBED IN THE LIST OF RISK FACTORS SET OUT IN THE RELEVANT SUBSCRIPTION AGREEMENTS (WHICH IS NOT MEANT TO BE EXHAUSTIVE). THE USE OF THE ARDA PLATFORM WILL BE SUBJECT TO USER TERMS AND CONDITIONS AND/OR LICENSING AGREEMENTS, AND POLICIES WHICH WILL BE AVAILABLE WHEN AND IF DEVELOPED AS DESCRIBED IN THIS DOCUMENT (OR WITH VARIATIONS AS MAY BE), WHICH WILL BE SET OUT IN A SEPARATE AGREEMENT (AND NO EXPECTATIONS OF OR RELIANCE ON THE SAME MAY BE MADE). FOR THE AVOIDANCE OF DOUBT, SUCH END USER TERMS AND CONDITIONS AND/OR LICENSING AGREEMENTS, AND POLICIES ARE SEPARATE FROM THE LEGAL TERMS AND CONDITIONS GOVERNING THE SUBSCRIPTION OF ARDAT ROUND A TOKENS AND/OR ARDAT TOKENS.

ANY INFORMATION OR DOCUMENTATION (INCLUDING THIS DOCUMENT AND ANY SUBSCRIPTION AGREEMENT FOR THE PURCHASE OF ARDAT ROUND A TOKENS OR ARDAT TOKENS) CIRCULATED, FURNISHED OR PUBLISHED BY US (OR OUR EMPLOYEES, REPRESENTATIVES OR AFFILIATES) DOES NOT PURPORT TO BE, AND SHALL NOT IN ANY WAY BE CONSTRUED AS, AN OFFER TO USE OR PARTICIPATE IN, OR A SOLICITATION OF AN OFFER TO USE OR PARTICIPATE IN, ALL OR ANY SERVICES THAT ARE OR WILL BE PROVIDED, OR ACTIVITIES TRANSACTED OR THAT WILL BE TRANSACTED, AS THE CASE MAY BE, ON THE ARDA PLATFORM (OR ANY OTHER APPLICATIONS AND/OR PLATFORMS BUILT THEREON, WHETHER DEVELOPED OR IN-DEVELOPMENT).

# *** Important Information ***

**Risk summary**
The purchase of ARDAT Tokens involves considerable risk. These risks are described in the 'Risks Summary' of this White Paper.

**White Paper will be updated before the token generation event**
This version of the White Paper will be updated before the token generation event. You should ensure you read the final version.

# 1. The Two Key Problems We Address

When you exercise, you're not just working for your health. You're also working as a data generation machine for corporate behemoths. Even if you don't wear a fitness gadget on your wrist, your smartphone is recording data from your activities – whether it is walking to the bus stop or playing competitive tennis.

There are two main problems with this situation:

1. **You're not in control of what gets done with your activity data. The corporations that built your gadgets and software are the real owners.**
2. **Right now the data isn't helping you that much when it comes to reaching your health and fitness goals.**

Let's return to point 1 later. Obviously blockchain technology is the ideal means to maintain control over your data (especially when that data becomes more insightful). But the opportunities go far beyond privacy, as we shall see in Section 4.

Looking at the second point, let's explore why the value-add of fitness wearables and data repositories has been so underwhelming. Back in 2014, IDG ran the headline "Wearable Tech's Dilemma: Too Much Data, Not Enough Insight". Not much has changed since then. All those numbers still aren't helping most people, even though offering useful "insight" isn't very complicated, conceptually. Really, you are just looking for answers to three questions:

**1. What should I do?**

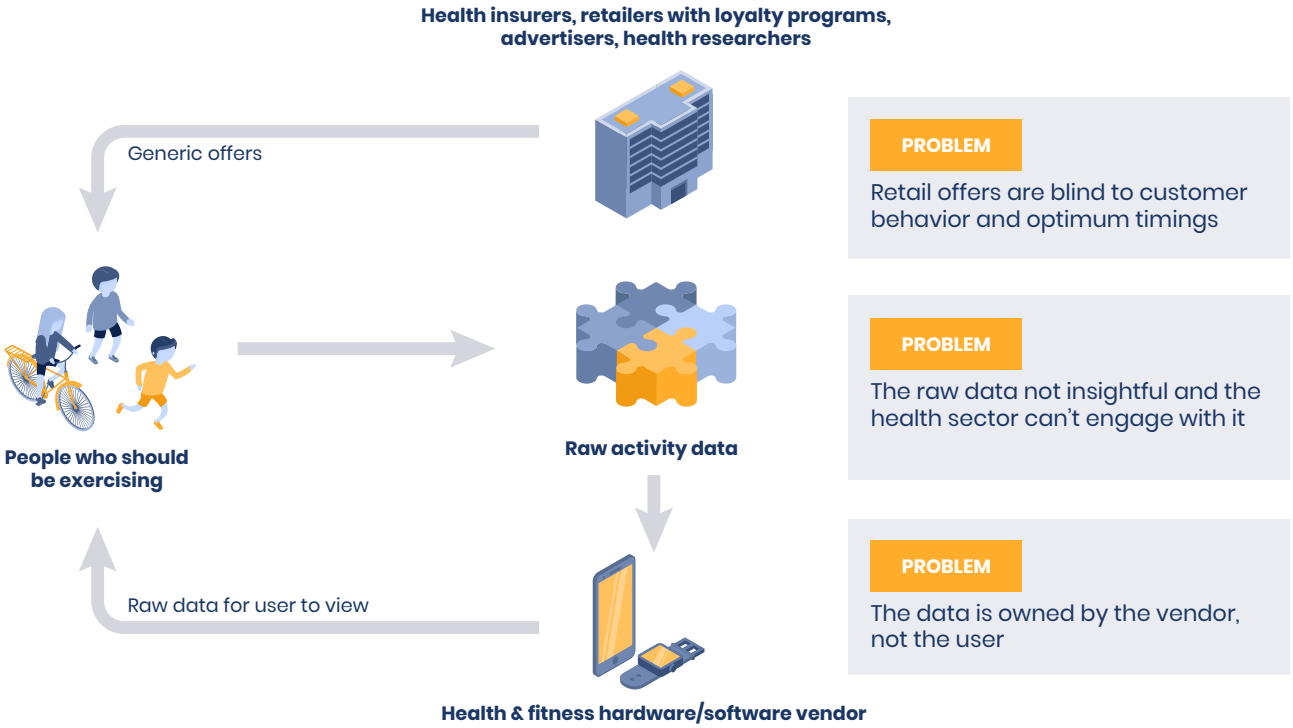
Almost everyone has a fitness goal, whether it is losing a few pounds, reducing their blood sugar, or running their first half marathon. A truly insightful fitness app needs look at all your exercise history, take your schedule and current fitness into account, and tell you what you should do – today – to move closer to your goal. Your current devices and apps can't do this.

**2. What did I do?**

You want to know if you did what you were supposed to do. Right now, any conventional smart devices can't tell you this. They can tell you how many steps you took, and maybe how fast you went, but not whether that counts as a good, bad, or insane effort level for you. They can tell you that you walked for a mile, but not that you walked too fast up a hill while fatigued, which is the kind of resolution that is needed.

**3. How did I perform?**

You might think that if a fitness app or device doesn't know exactly what you did, then it can't really know how well you performed. You'd be right. And measuring heart rate isn't a silver bullet. If they don't factor in terrain, recent activity, and typical performance in similar situations, then they're just shooting in the dark when they tell you how you're doing. We will explain this in mathematical terms in section 5.




We have built a cloud-based AI platform, called Arda, to make sense of users' activity data, and which deploys smart contracts to facilitate the sharing of insights with all participants in the health, wellness and fitness ecosystem:

# 2. Background on Performance Lab

Performance Lab Technologies Limited ("Performance Lab") was the first commercial sports science consultancy in the world. In our thirty-year history we have helped tens of thousands of athletes on a face-to-face basis. We learned to meet the needs of all kinds of people, from sedentary and unhealthy workers seeking better health, right through to world champion runners, cyclists, rowers and sports teams seeking that extra 5% performance gain. Performance Lab has gone through four distinct phases:

1. **Using expert consultants to interpret user data, most of it generated in a laboratory testing environment.**
2. **Developing machine learning and analytical systems to pre-process the data to assist and scale up the reach of the expert consultants (including working with athletes we never met face to face).**
3. **Turning these analytics systems into an AI engine called Arda that could work with no human input, and which today powers a number of leading fitness apps and devices.**
4. **Integrating blockchain technology to protect user data, create new opportunities for data owners, and to incentivize healthier behaviors.**

In the second phase we developed a large amount of prior art and intellectual property that constitute a significant barrier to others seeking to extract insight from activity data. This is explored more fully in Section 5.

During the third phase, Performance Lab made our Arda AI engine available to household names such as New Balance, Oakley and Intel, as well as leading fitness innovators such as Lifebeam and Mio Global. Our engine is also being used by one of the world's leading Defense Training corporations to understand the physiology of troops and by the leading provider of gym-based exercise classes to provide an optimal training schedule for each customer. To re-iterate: The core technology discussed in this White Paper (which we refer to variously as Arda, Arda technology and/or the Arda Platform) already exists, and has been deployed by licensees. What we have seen, however, is that we have the chance to dramatically increase the scale of this operation by embracing a new model, which we have already piloted.

Our move into this fourth phase was prompted by our engagement with Centrality.AI — a specialist provider of tools for developing blockchain-enabled apps. We worked together to develop such an app, one which used our technology to manage users' training schedules and connect them to the wider health and fitness ecosystems. Centrality was so excited by the prospects for leveraging blockchain technology in this health and fitness realm that they became an investor in Performance Lab and have supported our own evolution in this area.

Throughout its history Performance Lab has been guided by one core objective: to help as many people to be their best selves by achieving their fitness and wellness goals. At each of our four phases, we have scaled up our power to do this and we are excited about how blockchain transactions can provide the same feedback that you would receive from a world-class personal trainer.

# 3. Token-Based Transactions for Improved Health (ARDAT Tokens)

As outlined in Section 8, new users will be allocated tokens to incentivize their initial engagement with an active health platform, known as Arda (meaning “earth” or “grounded” in several languages). Performance Lab has established a subsidiary, Performance Lab Platform Pte. Ltd. (the “Company”), which issues tokens (known as ‘ARDAT Tokens’– detailed in section 8). ARDAT Tokens can be used by holders to access a range of services, all of which have been deployed separately in a non-blockchain world by corporate partners during an earlier phase of Performance Lab’s evolution, when we focused on enabling other business to offer better training to their customers. But we are now bringing all of these services together in one place for consumers — and protecting their personal data. After their initial engagement, users will need to buy tokens to access further services or earn them through good behavior.

Below we have described the Arda services which can be accessed by holders of ARDAT Tokens. For more detail on these modules, see Section 6.

- **Personal Training Plan**

A structured exercise schedule, completely personalized to take on board your goal, current fitness, existing commitments and exercise history. Suitable for those who are new to exercise as well as veterans.

- **Adaptive Planner**

Unique AI that maintains the integrity of structured training when life inevitably gets in the way. Injury, illness, family holiday or business trip and altered weekly commitments can all be accommodated. The training plan evolves in response to these factors, allowing you to stay on track toward your health goal.

- **Workout Analyzer**

We use a range of data streams and recent history to understand the context of your exercise and what exactly you were doing. This allows us (and you) to see if you are on track and, if not, what needs to change. We can also show you where your effort and technique was optimal and where you can improve.

- **Fitness Monitor**

Who wants to see if and how much they are improving and what behaviors led to this? Correct: everyone.

- **Real-time Coach**

An AI coaching assistant in your pocket and in your ear, keeping you on track and – crucially – monitoring your effort to make sure you don’t push it too hard.

Performance Lab's reason for being is to promote health and improvement. Therefore, to incentivize health-promoting behavior, Arda users will receive ARDAT Tokens for reaching milestones in their exercise journey. These milestones need to be personalized to every individual. Benchmarks like 10,000 steps a day just don't make sense for everybody. Appropriate milestones that we will reward include:

- **Setting up your first ever Personal Training Plan**

  If you are a beginner, this is a major milestone. The plan will build in lots of recovery days and make sure you don't push yourself too hard.

- **Getting to the six week mark in your Personal Training Plan, having completed 75% of the suggested training**

  Our research shows that if you can get to that point, training will be different for the rest of your life. So we want to incentivize it! Remember that if you are new to exercise your plan will be a pain-free way to build an exercise habit. If you're an experienced athlete it will push you to new heights of performance.

- **Getting through the toughest week in your plan**

  One of the dumbest exercise mantras is "no pain, no gain". Our training avoids pain early in your plan, as you build up your fitness. We progressively get you to the point where you can do things you didn't think were possible, and want to reward you when you achieve that.

- **Adapting your training technique in response to the real-time coach**

  Exercise hurts when you do it wrong. We want to reward you when you do it right. If you are a beginner, we will reward you for mastering the basics in blocks of a few minutes at a time. If you're more experienced, you'll need to show mastery for almost the whole workout.

- **Supporting others in the community**

  Offering advice and encouragement to others is a big plus in our community, as is bringing people into the fold. We want everybody to experience the health benefits of improved activity.

Now, we know that we are inviting you to join a fitness and wellness ecosystem, where your ARDAT Tokens have real value and can be used to access an increasing array of services. You might be worried about others 'gaming the system' and producing fake data just to get tokens. Maybe you've heard that if you put a conventional smart device in the tumble dryer it gives you 10,000 steps in no time. Well, our Workout Analyzer knows exactly what you've done. We bring in a huge amount of context: terrain, resistance, effort, current physiological status and so on. That context can't be faked and so our system can't be gamed without someone doing the actual exercise. And if it isn't the same person, we will know that too through the identifiers in the Workout Analyzer and Fitness Monitor.

Similarly, we want the data entering this network to be high quality. Our data filters ensure that what is coming in is realistic, which is not always the case when phones are taken into tunnels or the wilderness. We have proprietary ways of filtering and evaluating data that you will understand better if you make yourself a coffee and read Section 5.

# 4. ARDAT Token Transactions to Extract Value from Your Own Data

If you use the services described above, your activity data is worth more to third parties. Much, much more. Think about how keen a sports apparel company would be to know who has just passed the 6-week mark in their training, completely buzzed about their improvement! How interested would a health insurer be in knowing that you are a smart exerciser whose cardiovascular health has been steadily improving? And imagine how much more valuable your data is to researchers, with full context about what you were doing and how it was affecting you, compared to the blind data captured by your smartphone alone.

The great thing about blockchain is that you have the opportunity to control your own blockchain-based data, and it is possible to share it with third parties in exchange for more ARDAT Tokens. We actually believe that your wellbeing can be enhanced through these sorts of transactions, as long as you are in control of them. So each time you choose to allow your data to be queried by a third party you will also receive ARDAT Tokens. Because these third parties will be paying ARDAT Tokens for the privilege to query your data, the more of them that engage, the more demand for ARDAT Tokens will grow. And the more people in the ecosystem, the more valuable the data you collectively control becomes.

We have identified four initial third-party groups that will be enabled to transact with you at launch.

**1. Health-related royalty schemes**

The most valuable customers to recruit for loyalty schemes are those who are dedicated to an activity for which they will make regular purchases. It is a win-win relationship, as the vendor gets access to regular business and the customer receives discounts. Furthermore, because you can use ARDAT Tokens for purchases rather than loyalty points, those points don't show up as a liability on the vendor's balance sheet, making them even more keen to transact with you. Your identity will not be revealed but offers can be sent to you via the blockchain, with your exercise history also verified by the blockchain.

**2. Commercial researchers**

These are organizations that want to know about patterns of health and fitness activity in select communities. You will receive ARDAT Tokens if you make your data available anonymously to these researchers. We have dozens of parties interested in these transactions.

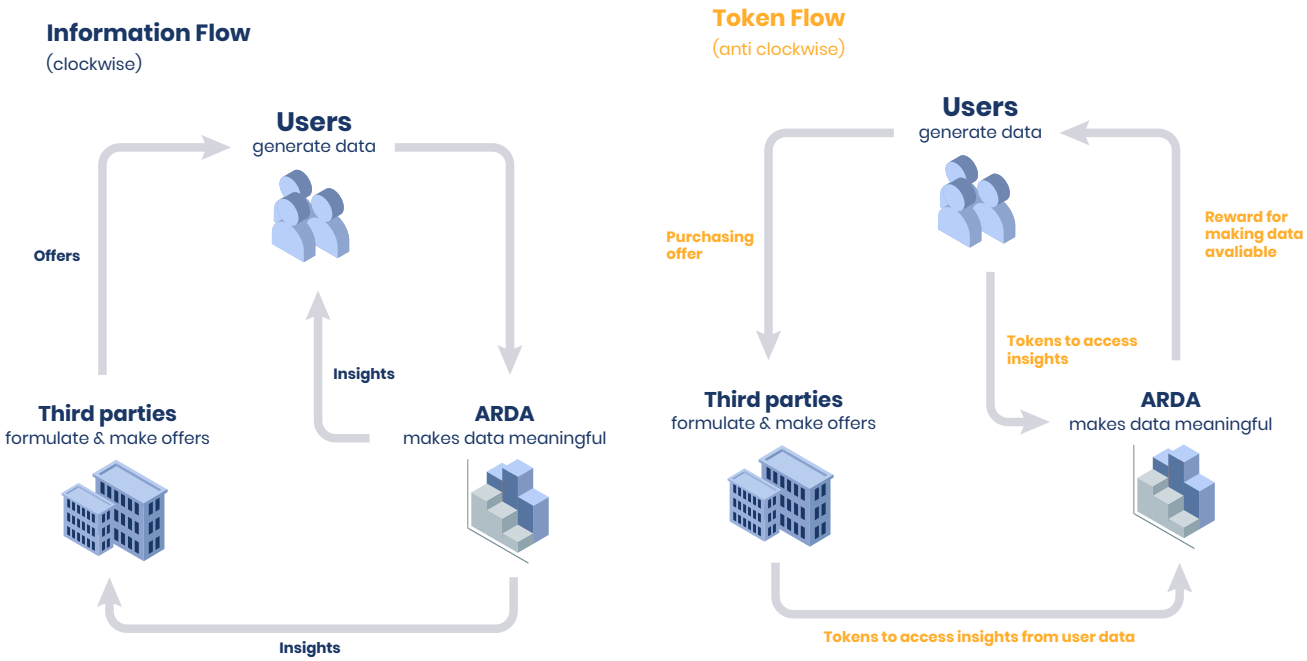
**3. Public good researchers**

These people want to know many of the same things as the commercial researchers but to save the world rather than making a profit. They'll also be very interested in your (anonymized) fitness improvements and physiological markers. It's up to you whether you want to help them out but if you choose to do so you will not receive ARDAT Tokens since these researchers are verified non-profit entities and social enterprises.

**4. Advertisers**

You know this crowd. They want to make you an offer based on who you are. You'll get rewarded each time you allow your data to be released for this sort of targeting. In theory you will get offers relevant to your personal needs and remember that our ecosystem is designed from the ground up to be health-enhancing. By paying for any offers in ARDAT Tokens, you also provide them with the tokens needed to make their next offer. And so the ecosystem hums and cycles to everyone's benefit.

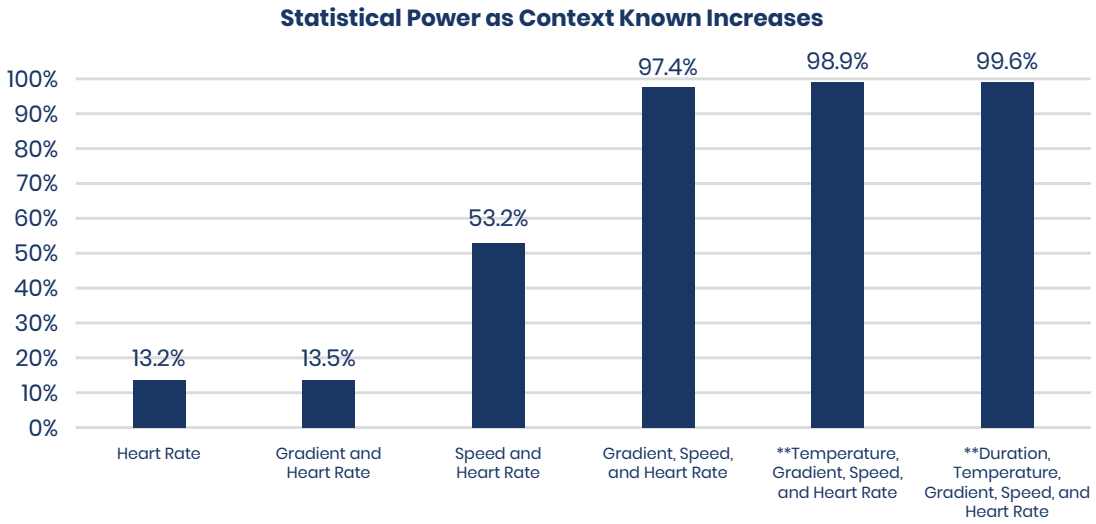
If you choose to engage in these transactions, you will recoup some, all, or more ARDAT Tokens than what you spend accessing the services described in Sections 3 and 6. The choice lies with you. And because these third parties spend ARDAT Tokens in order to get the right to transact with you, the demand for ARDAT Tokens will increase as long as the ecosystem grows and can supply richer data and more fruitful transactions. So it may be useful for users of the services to acquire tokens at an early stage.



# 5. Intellectual Property

As we have been discussing, unless you put activity data into context, that data is meaningless and doesn't lend itself to the generation of usable insights. We have a significant IP portfolio and prior art that constitutes a near impassable barrier to entry for anyone else attempting to launch a model like the one being presented in this paper.

To explain this, let's start with a simple example of context lending itself to insight. Many running watches and wristbands provide a measure of their users' fitness and almost no-one takes them seriously. Users are right to ignore them. Basic watches use only speed, while more advanced models incorporate heart rate. But unless you add a critical third contextual element — namely gradient — you're still at pretty much coin-flip accuracy. Think about it: if your speed is the same as yesterday, but your heart rate is higher does that mean you are tired or less fit? Or might it be that you were climbing a hill? Only Arda technology takes all these parameters and more into account, using a patented method. This results in a near doubling of statistical power, as illustrated in the graph below. [1]




It might seem that capturing gradient is difficult but it can be measured by any device that registers altitude change and distance change. More than a billion smartphones currently in use can do this – but their power to do so to add context to activity data is largely untapped without making use of our intellectual property.

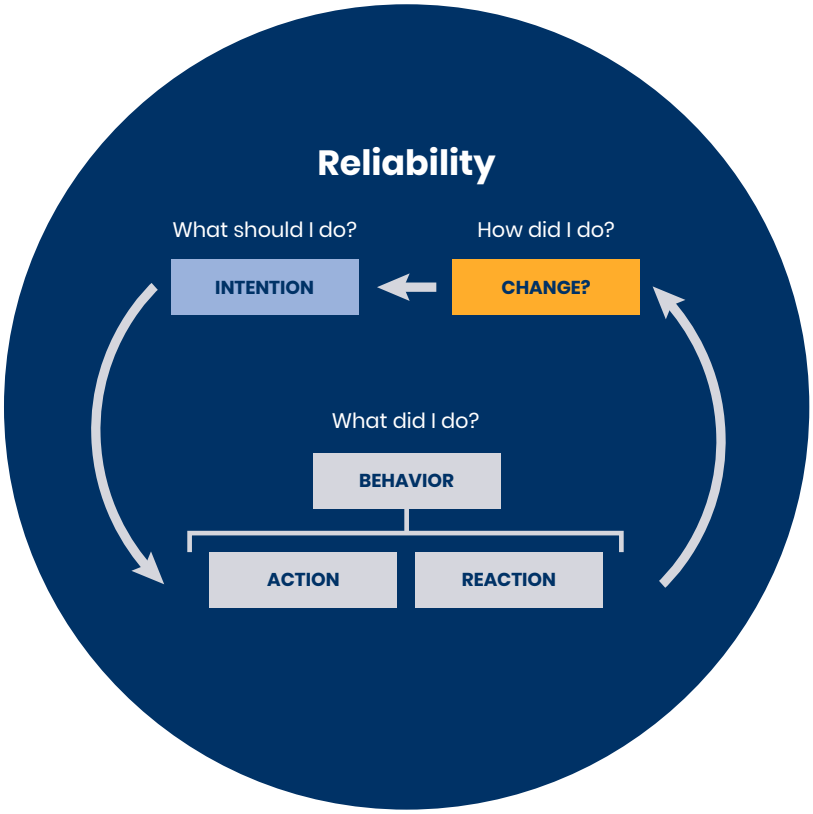
Of course the scope for adding context to activity data goes far beyond this simple example. At Performance Lab we have developed tools and algorithms that work with six aspects of context:

1. The clues we have regarding the data's reliability,
2. The amount of action or effort that takes place,
3. The short-term physiological reaction to the action,
4. The specific and meaningful behavior we can classify once we know action and reaction,
5. The medium-term physiological change produced by a pattern of action, and
6. The intention someone had going into the activity.

---

1 $$Z_\beta = Z_\alpha - \sqrt{N}d$$

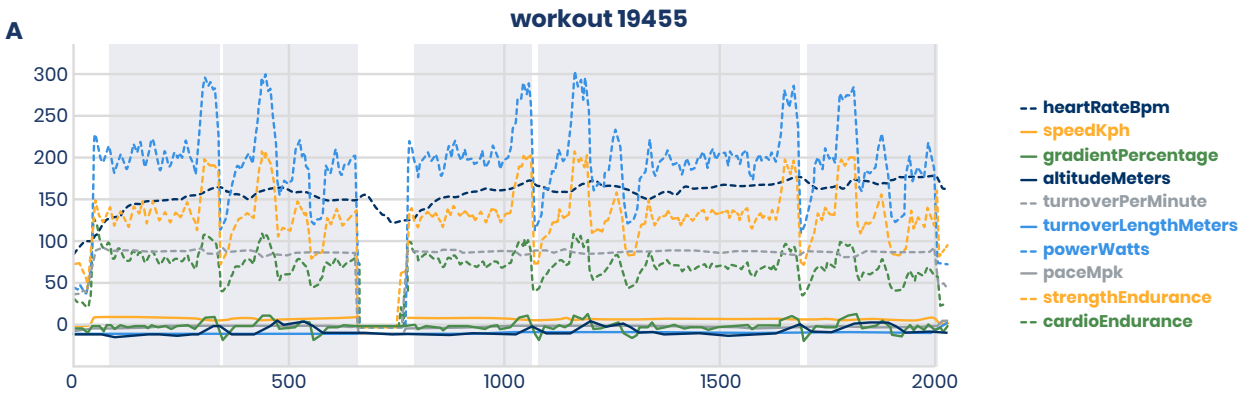
*A set of potentially physiologically significant heart rates were established, ranging from 1 beat per minute up to 10 beats per minute. For each of these differences, for each condition, Cohen's d was calculated. The oft used threshold of $\alpha$ = 0.05 was used, and hence $Z_\beta$ was calculated for each difference and each condition, and $\beta$ was calculated for each condition for a range of circumstances.*

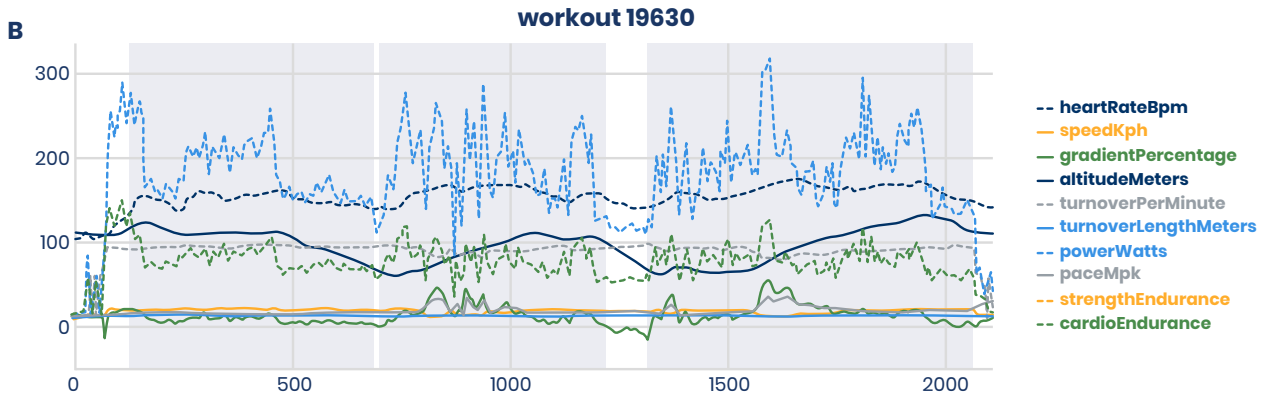



## 5.1 Reliability

Before we can even discuss analyzing data we must trust that the data is of high quality. Performance Lab has proprietary filters that assess data before accepting it. This analysis takes on two forms; accepting or removing whole activity logs from the database or accepting or removing parts of activity logs.

These filters are based on known normative relationships between the parameters within the data.



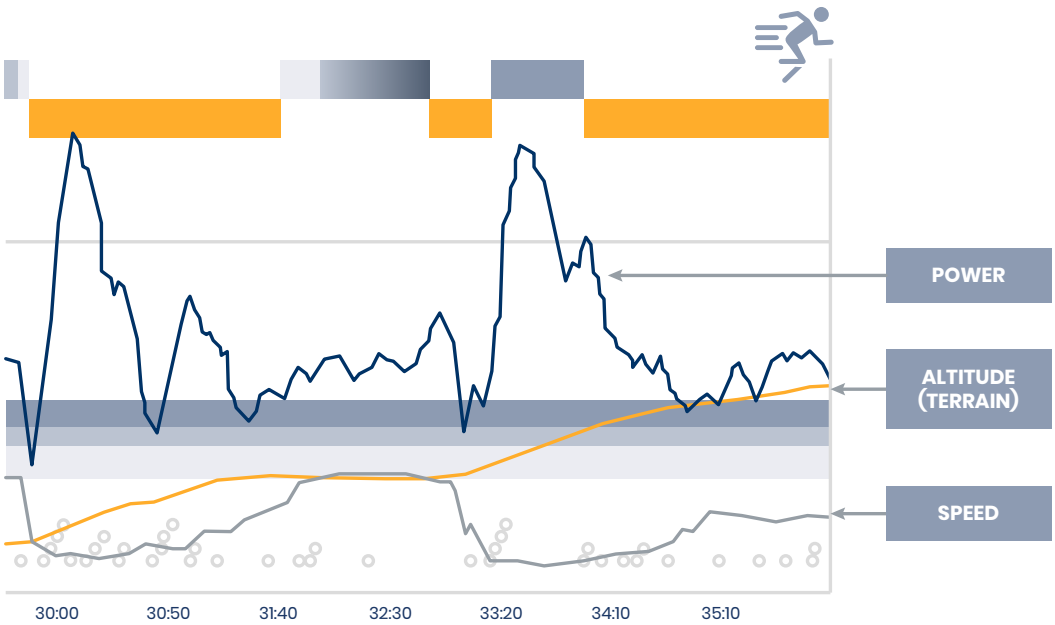



*Screenshots from Performance Lab's Test Platform Showing the Contextual Data Filter Process to Ensure Erroneous Data Does Not Pollute the Calibration Data Sets.*

## 5.2 Action

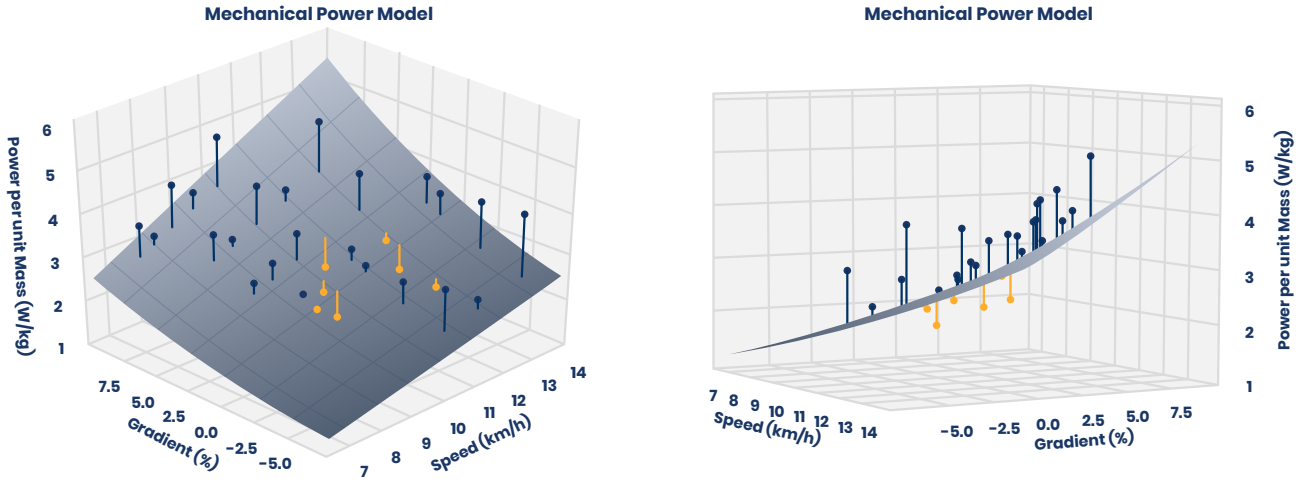
To fully understand activity data there must be some estimation of 'work', or the quantity of action. Subjectively, work feels equivalent to 'effort'. The most common parameter used to estimate work is speed but this has significant weaknesses because it does not take terrain into account.

What would work perfectly is the scientific concept of power (Joules per second, or think of it as calories burned per unit of time) but until now this has been very difficult to measure in activities other than cycling, which have special power meters installed on the bike's crank. Performance Lab has developed unique power algorithms that infer power at a highly accurate level for the most common activities that we perform.




*Speed Drops During a Runners Hill Climb as Power (Work Done) Increases Significantly.*

What makes these algorithms even more useful is that they do not need a purpose-built device but power can be inferred from a smart phone.

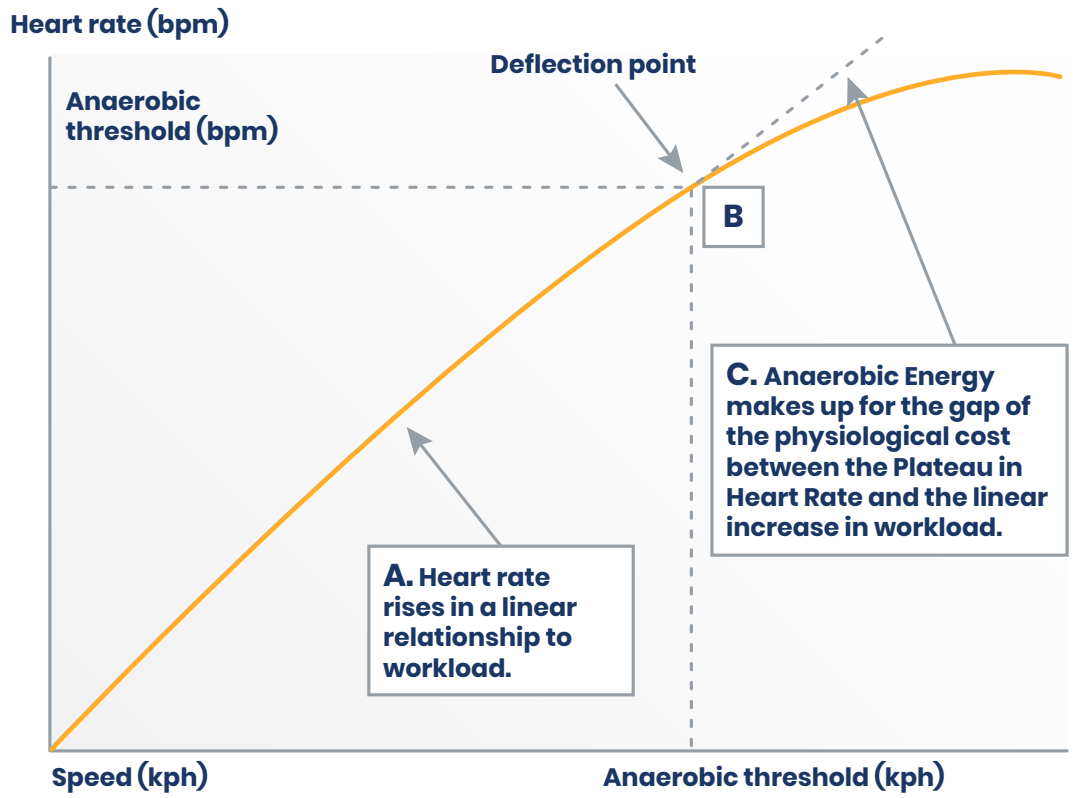



*Error of Performance Labs Inferred Power as Calculated by Smartphone, when Compared to Directly Measured Power.*

## 5.3 Reaction/Effort

For every action there is a reaction in the body and the reaction tells us a lot about a person's physical and sometimes their medical status. For example, if you have reacted in an extreme way to a given exercise or effort in the past and now generally react in a milder way to that same exercise or effort we can say that you are getting fitter. Note that we are comparing like with like: you have to be doing the same thing. Understanding from a data stream that a user is doing the same thing as on a previous day is extremely hard – and requires knowledge of a lot of context. In the real world with its hills and valleys, hot days and cold days, it is very difficult to get data that you know can be legitimately compared to a previous batch of data. In layman's terms, we identify little chunks of differentiated activities that are constrained enough that they can be used to make accurate comparisons.

With a user's action, we need to see how their body is reacting. This can be measured directly with a heart rate monitor but for the majority of users who lack such a device we can use the power data we already have to predict what we think the heart rate is doing. The reason we can do this is that heart rate rises linearly in relation to power until it reaches a deflection point at about 95% effort. While this deflection point is determined by heart rate, it corresponds to a power level. This means that Heart Rate Training Zones can easily be converted to Power Training Zones and we can infer the user's level of effort based on which zone their activity falls into. Taking this a step further, we have developed trade secret methods to establish Power Training Zones where heart rate is not present.




*Conconi Field Test to Identify Anaerobic Threshold (FTP, LT) with Corresponding Heart Rate and Speed Values.*

So we have ways of measuring the reaction. But If a person is to exercise intelligently one of the major roadblocks to success is working out what 'high effort' is. This is not the same for everyone: 150 heart beats per minute might be easy for one individual while it is near maximal effort for another.

What is needed is a method for indexing the effort specific to the individual. Once effort is indexed, calculations can be made to set training zones that provide a specific guide to the effort level of the user at any given intensity.

There are many strenuous, time consuming and expensive tests that can be used to index effort but these have been too much of a barrier and have not achieved mass adoption. Performance lab has developed a proprietary method for establishing physiological training zones that takes place automatically while the users goes about their general activities in walking, running or cycling.

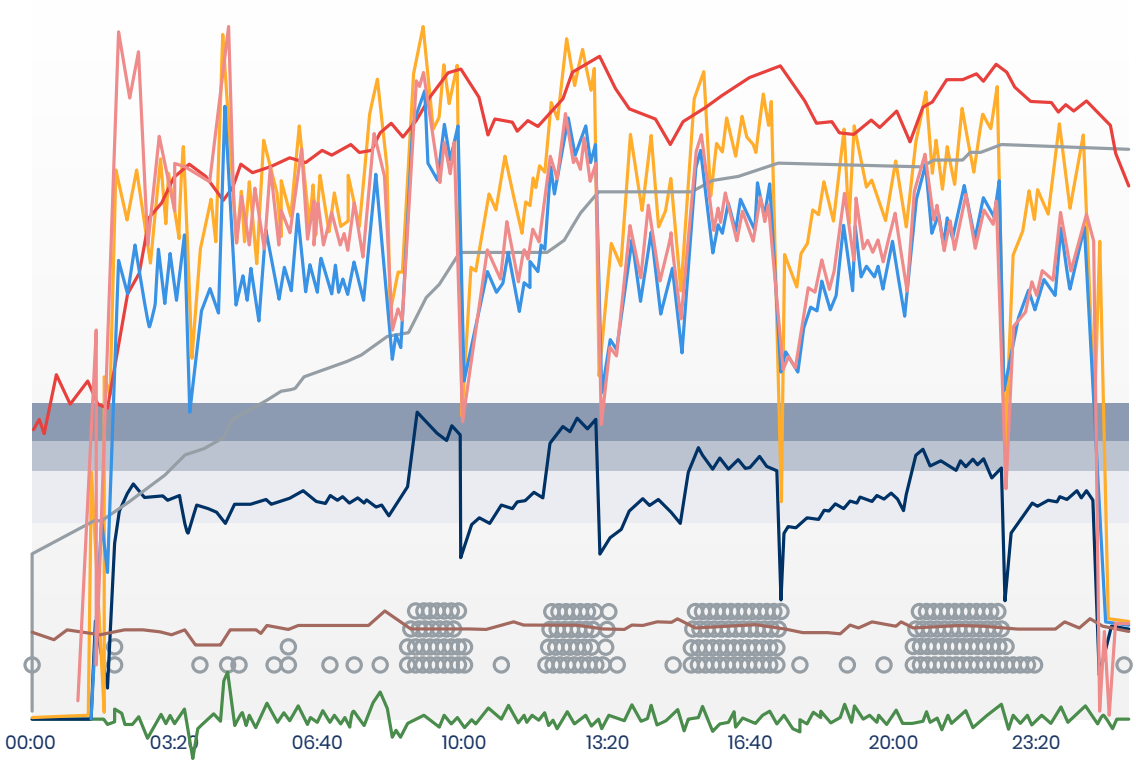
This automated and low-input method of determining what counts as intense effort for a given individual and the ability to see how near a person is to that effort level has massive practical application in:

- Professional sports training
- Fitness training
- Weight loss
- Monitoring effort levels in a supervised environment (e.g. soldiers in combat, fire crew in operation).

Performance Lab has applications in market for all of the above scenarios and is currently investigating blood pressure and type 2 diabetes control that matches effort and exercise volume to BP and blood sugar change.

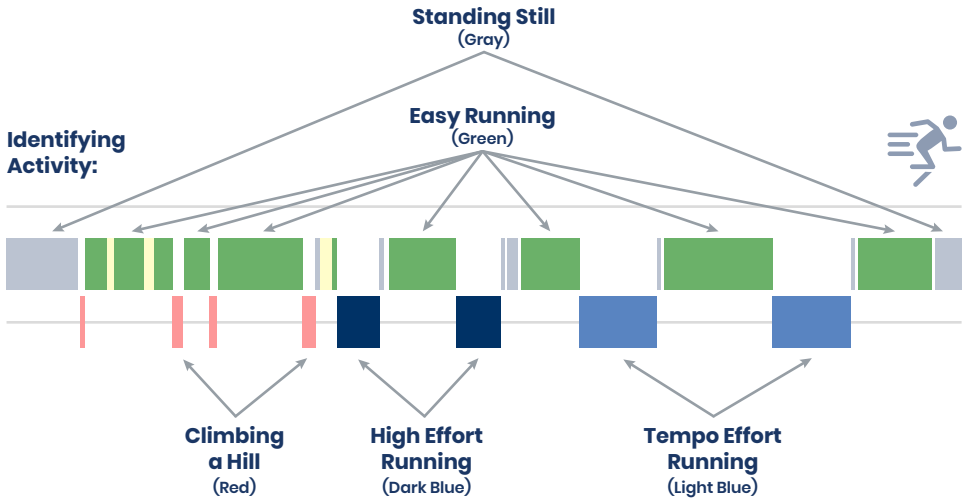
## 5.4 Behavior

Once we know the action and reaction we can classify behavior. Performance Lab has a patented method to unscramble the complex physiological relationships between different data parameters so that we can produce contextual activity classification. So from the data below the system automatically in real time can take this ...




*A Screenshot of Sensor Inputs*

... and convert it into colour coded, identified and classified types of activity that are clearly differentiated and tightly constrained data like this:




**Training Type Identification blocks as shown at the top of all the previous graphics.**

*Identified Contextual Classifications (Training Types) as Segments Through a Workout.*

The data can now be interrogated at quite a high resolution because:

- The overall activity has been identified (e.g. running)
- And the sub activities have also been identified (e.g. running up a hill with an effort and stride length that is too high), we know precisely what the person is doing.
- We know when these activities occurred
- We know where these activities occurred
- We know how much work they are outputting (power)
- We know how much effort they are putting out specific to their own personal ability
- We can tie this in with the user's blood pressures, glucose levels and stress levels (heart rate variability).

This means is that very subtle and detailed comparisons can be made because the data is tightly constrained and like-with-like comparisons are possible. For example, we could see that going up stairs too quickly is associated with blood pressure spikes or that moderate hill effort is associated with the greatest strength gains.

For further information on IP and continuances, please refer to our patent: I.P. Classification System and Method

- Status: Patent US 9,665,873, EU patent application EP 2539837 A1
- Priority Date: 24 Feb 2010.
- Continuance: US- 2017-0316425 -A1

Another critical practical application of this approach is knowing whether someone did what they were supposed to. Any exercise plan or intention specifies certain actions. Arda's ability to classify what you actually did means we can evaluate how well you complied with your plan.

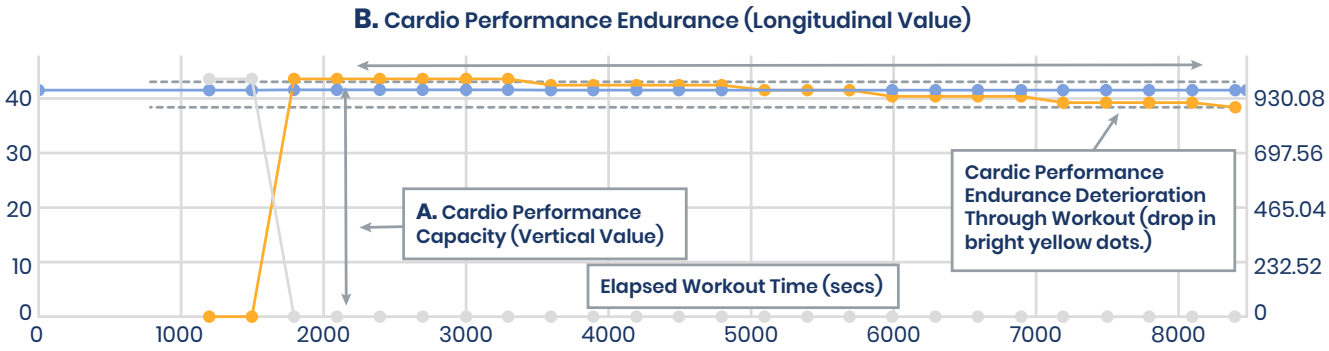
## 5.5 Change

Change occurs in two layers:

- Medium-term physiological (fitness or medical) changes
- Changes in behavior as a result of prompts

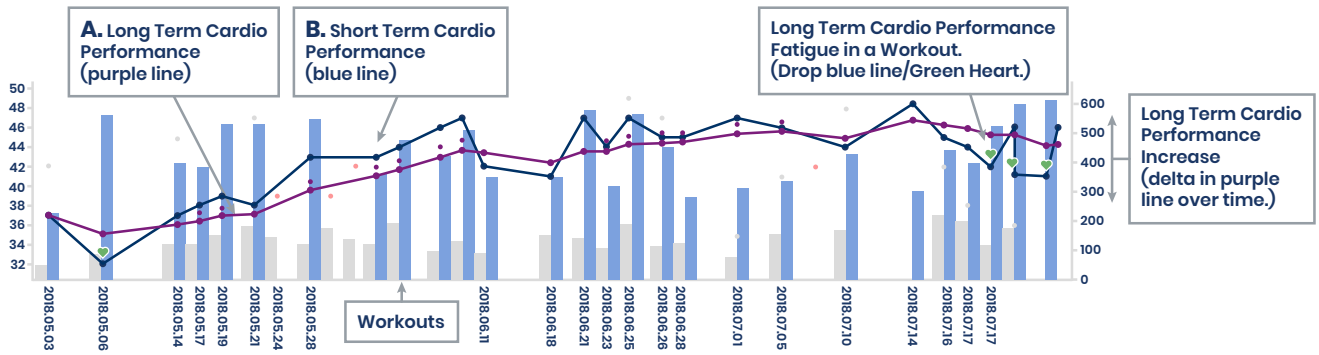
Performance Lab has the only system in the world that can measure physiological performance change on a day to day basis accurately and directly on a mass scale.

For a given workout, performance can be assessed either post-workout or during the workout in real time. The Performance algorithm measures both peak capacity and endurance.




*Cardio Performance Capacity and Cardio Performance Endurance Measures for a Workout.*

Inter-workout cardio performance is also of interest. Long-term cardio performance (slow time course) represents physical fitness, which is relatively stable over time – it doesn't vary over minutes or hours but over weeks and months. Short-term cardio performance (fast time course) represents fatigue, psychological overstress, and illness and can vary much faster.



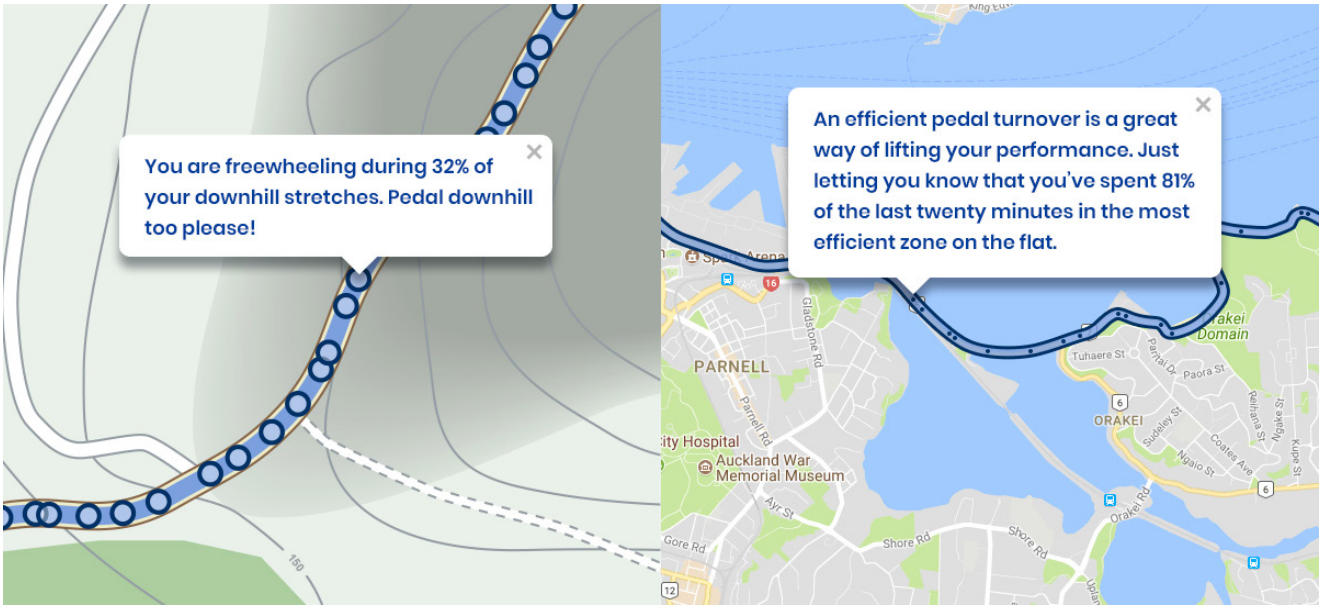

*Measures of Short and Long Fitness Measures for a Runner Over Several Months of Workouts.*

Behavior can also be changed by the insightful data-driven prompts being delivered at the right time. In other words: coaching.

If you know what a person is doing, how intense their effort is (relative to their own physiology), and what they should be doing in order to reach their health goals, it is possible to nudge their behavior to align with what is optimal. We have developed interpretive algorithms to do this for various fields of exercise.

This can be experienced in a number of products currently in market, including Oakley's Radar Pace smart sunglasses and Lifebeam's Vi, an interactive fitness headset.

*Oakley Radar Pace and Lifebeam Vi*




*ARDA Coaching Advice for a Cyclist.*

## 5.5 Intention

Intention is about what you plan to do, usually to achieve some sort of goal.

The relationship between your intentions and your actions is very important. If they are aligned, you will progress towards this goal and if they are misaligned you will go off track. Importantly, your plan then needs to adjust in order to bring you back on track. In the following section we will outline the various training modules facilitated by the Arda Platform, beginning with the generation and adaptation of training plans.

For more information on the intellectual property underlying this, see the pending patent Automated Prescription of Activity Based on Physical Activity Data: US20160263439 A1

- Status: Current PCT, US & EU patent application
- Priority Date: 11 Oct 2014.

# 6. ARDA Coaching Modules

The Arda Platform product suite is made up of a number of market-tested technologies that have been licensed to household names such as New Balance, Oakley and Intel as well as leading fitness innovators such as Lifebeam and Mio Global. Some of these customers use our technology on-device in order to bring a greater sense of intelligence to their devices in real time. Others have leveraged the cloud-based Arda AI platform (Arda Cloud Services) to rapidly bring functionality to existing web-connected applications. Through working with Centrality.AI we have also successfully integrated Arda modules with blockchain technologies, and will continue to build on this work (see Section 9).

The technologies outlined below are all currently available as part of the Arda Software Development Kit (SDK). They can be implemented in a number of configurations and have fundamental features that scale to the requirements of the application's market. The desire is not to create a one-size-fits-all product but to enable to creation of many applications that use fundamental coaching technologies to create compelling experiences.

## 6.1 Personal Training Plan

At the core of Arda is the training plan. This answers the "What should I do?" question, and can be thought of as a roadmap of activity that leads you from your current state to desired fitness goal. A good training plan forms the backbone of any health and wellness habit that is:

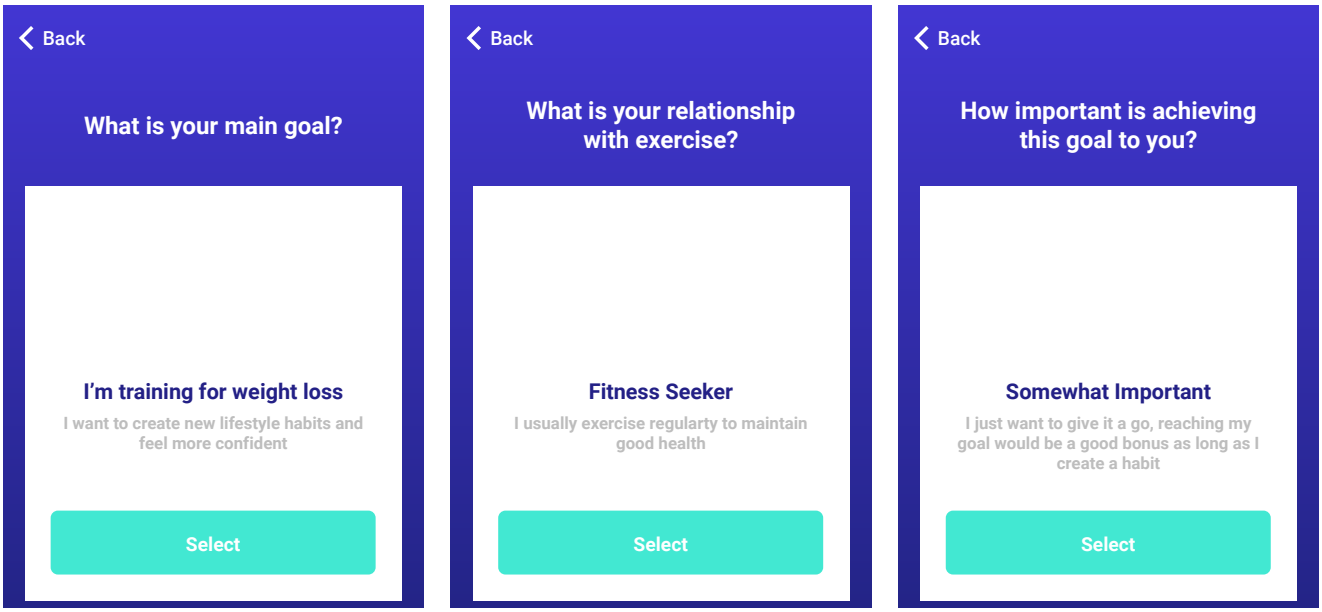
- Sustainable — by preventing physical burn-out and nurturing motivation;
- Enjoyable — by ensuring sufficient variety both to trigger the right change in your body and keep things interesting; and
- Predictable — by almost guaranteeing progress at the end — whether it be weight lost, strength gained or time reduced.

Fundamentally, a training plan provides a series of workouts that vary in intensity, duration and content, put together in a way that triggers positive change in the body. A good plan takes knowledge of how the human body responds to stimulus and takes advantage of not just what kinds of change occur, but when. Being on a plan is anywhere from three to 10 times more effective than training without one.

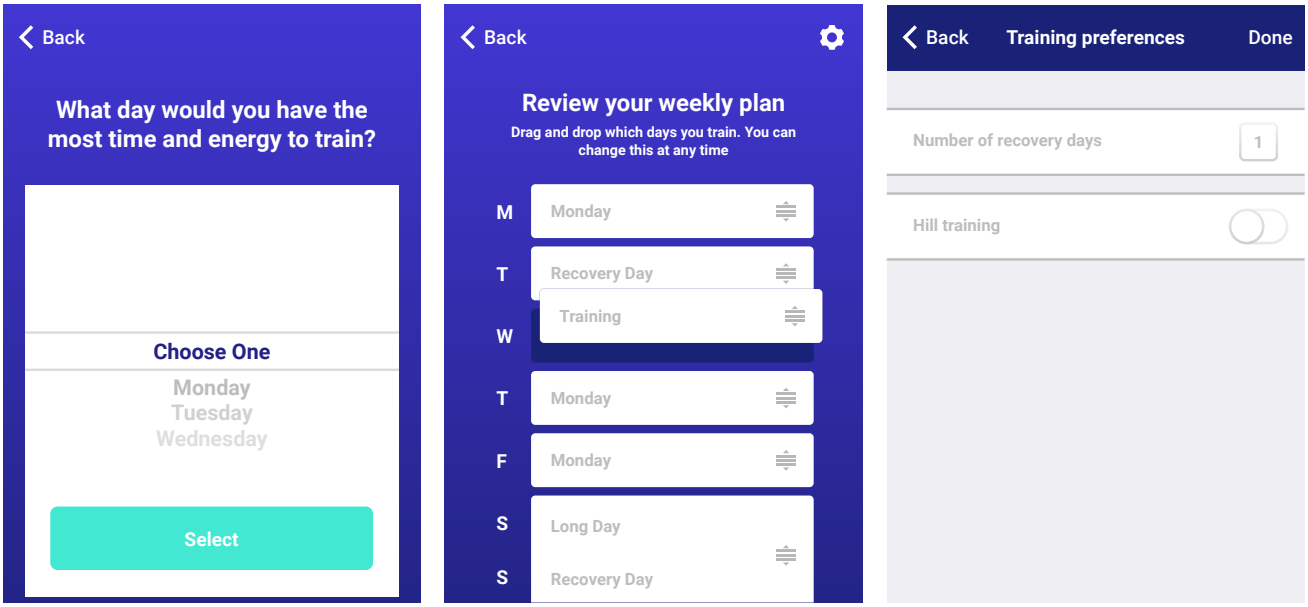
The problem is that everybody (or, every body) is unique. A plan that works for Usain Bolt could be totally inappropriate for you. Conversely, a plan that works for you might be much too easy for Usain. And even if you had similar bodies that would benefit from the same kind of plan, are you going to be able to commit the same amount of time to train as him? Maybe you have a time-constrained goal and he's in the off-season so again the same plan wouldn't suffice.

A plan is only as effective as it is personal and that's where Arda comes in. Arda's plan generation engine has personalization as its number one priority. Taking over a dozen inputs — such as your goal, experience, fitness, schedule, age, training history - it builds, from scratch, a training plan that is optimized for you and your body. If we just take running as an example, at our last count it was capable of over 100,000 different programs.

The customization is both personal:




and practical:




The engine is built on a foundation of sports-science and knowledge of human physiology. At its most simple, it is a varying rhythm of stimulus and recovery - dosing your body with hard work (the message to change), then giving it space to breathe with easier activities (a chance to "absorb" the hard training). The body adjusts to each dose of stimulus and comes back able to handle a little more - Arda knows this and ramps up the work in sync with this. Eventually, you're doing more in two days than you used to do in a week, but you're ready for it. Arda isn't out to destroy you - it knows what you need to be able to handle for your goal and builds you up to that.

This foundation is sports agnostic. It doesn't matter if your goal is to run an endurance race or lose some weight at the gym; the way Arda constructs programs that optimize exactly what you need to do to get there. This means that the principles below apply to everyone, from beginners to competitors.

## Microcycle Optimization

The rhythm of stimulus and recovery occurs day-to-day and actually forms a specific pattern that fits nicely into each week. This pattern of training is called a microcycle.

The microcycle distributes volumes and intensities to maximize positive impact on your body, much more so than if it was just a random collection of workouts.


It means that not every workout is necessarily hard. In fact, some are designed to feel quite easy but they all have a very specific purpose. The easier workouts are often used to expedite recovery or enhance technique. In some microcycles, certain easy workouts are better thought of as 'feeder' workouts — sessions that simply prime your body for something big it has to do later in the week. Big workouts are the stars of the week and are what trigger the most change. They might be harder workouts than you could have handled without the preceding work but by the time the big workouts roll around, Arda has made sure you're ready for them.

## Mesocycle Optimization

The human body is interesting in that it doesn't just respond to a rhythm of stimulus and response between individual workouts; it also really likes a bigger picture rhythm of stimulus and response between weeks. Groups of harder and easier weeks, in specific orders, combine to trigger a specific fundamental change. These groupings of weeks are known as mesocycles.

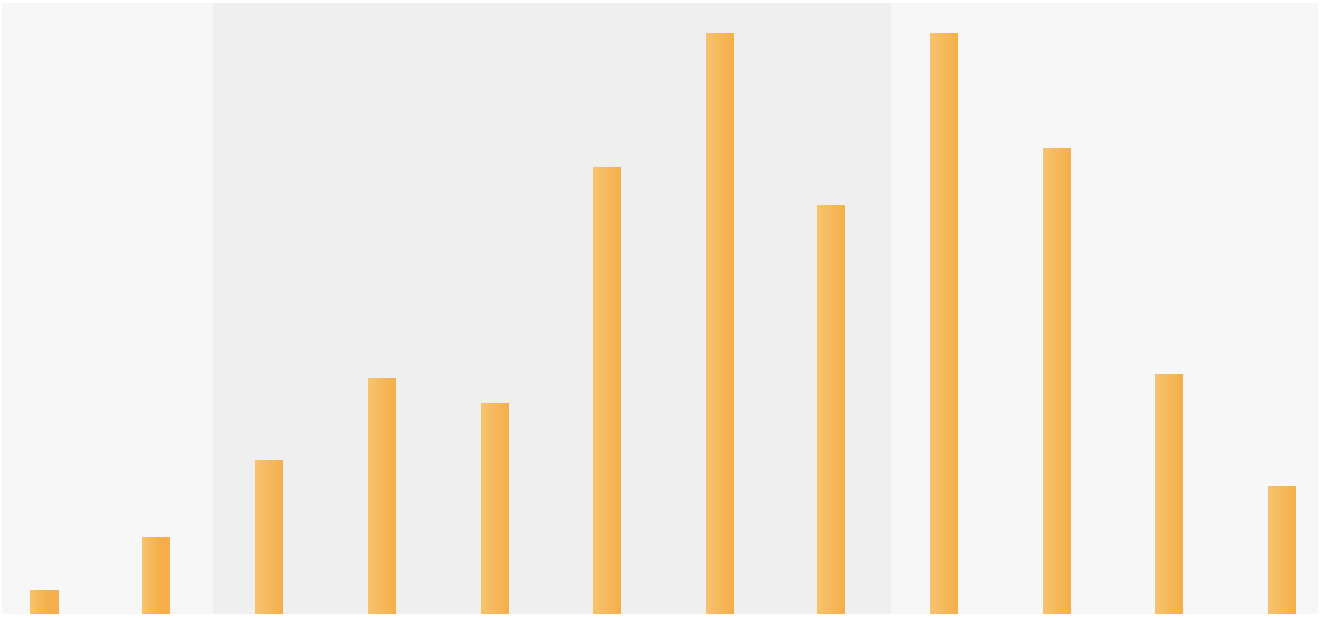
Again, some weeks feel easy. Some feel very hard. And some you'll realize are only possible because of the easy week you did beforehand. Each mesocycle will trigger more change, more sustainably and enjoyably, than any random collection of workout weeks. This is true whether you're a beginner or a competitive athlete – it's just how the body works.

### Volume Optimization

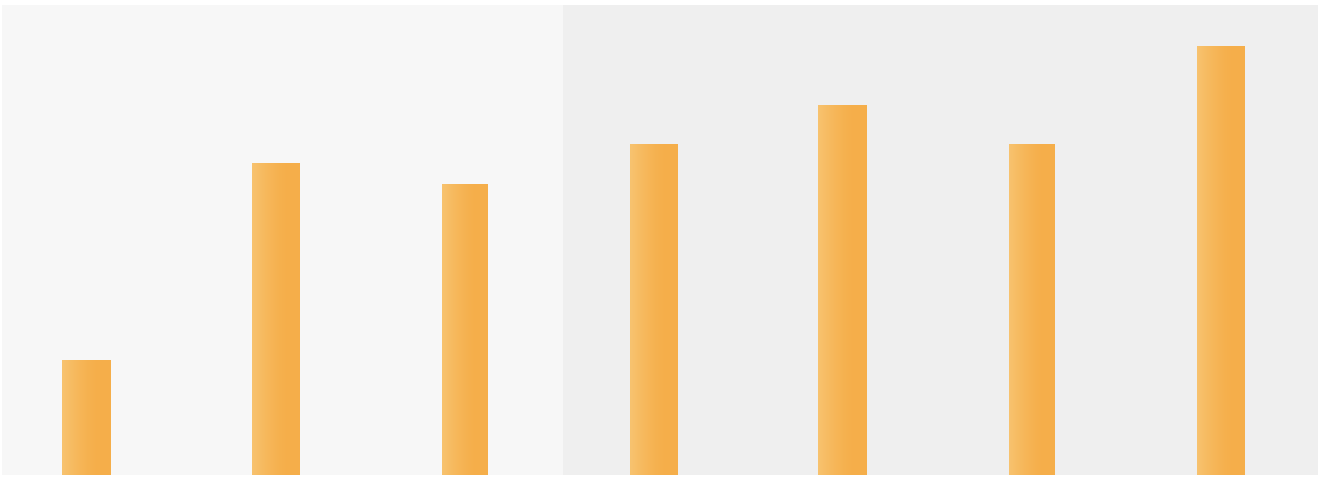
The pinnacle of many training plans is what we call 'Peak Week' — the training week that will often help you the most. It's what every other week is getting you ready for. The precise training load (or 'volume') of this week and the weeks surrounding it is very carefully calculated.

There are several ways it can manifest — the two main variants refer to the number of peak weeks you will have to go through, and how quickly you reach the peak. Arda takes account of your goal, how long your plan is, and how experienced you are, to decide what kind of structure you get.

Below is an example of a dual-peak program. Typically, these are reserved for longer, harder programs, or for people who have more experience. It's the structure for an elite endurance sports athlete. Note that it hits the biggest volume twice and tapers down to allow recovery for competition:



On the other hand, check out the program that would be developed for someone newer to fitness, with a weight loss goal. Note that it builds them up to a single big week:



### Training Type Configuration

A key component of both effectiveness, motivation and sustainability is variety. As touched on earlier, Arda varies the volume of work session-to-session — you might have a 15 minute workout on Monday and a 30 minute workout for Thursday. But Arda goes further than simply how much you have to do; there is also variety in the type of training to do. We call these varieties 'Training Types'.

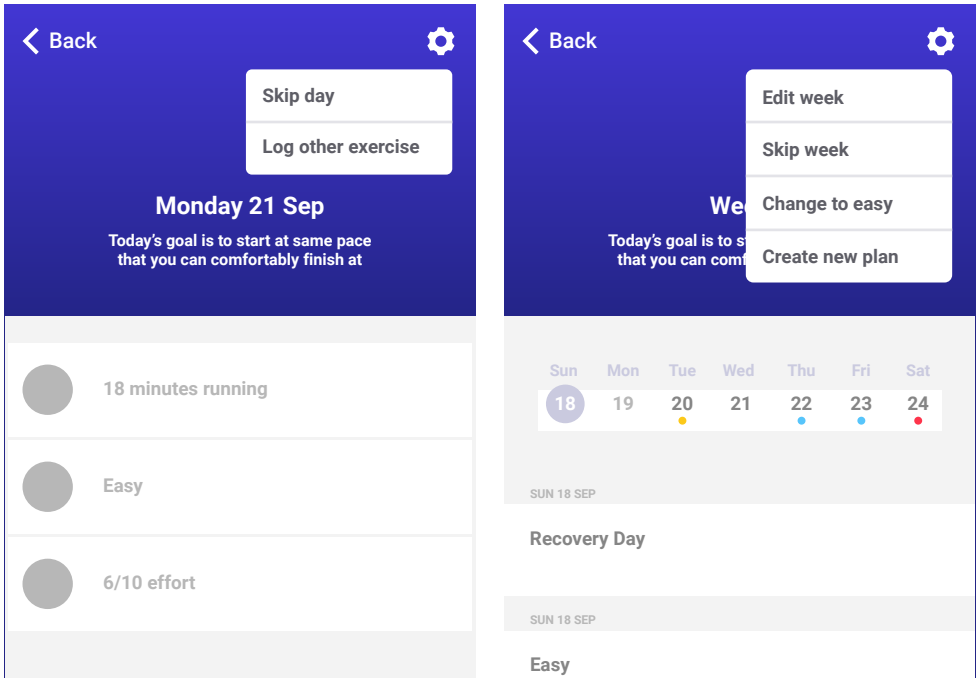
Training types emphasize different kinds of activities in order to stimulate and improve different body systems. A common training type for running is the use of hill or incline training. This makes the leg muscles work a little harder than they would on the flat. The result is strengthened leg muscles that take the body further with less effort — meaning more speed. A common training type in a conditioning or fat loss program might be interval training, where short bursts of high intensity are combined with periods of rest to spike the metabolism.

Arda knows how to balance certain high-impact training types with enough recovery so that you can reap the benefits without burning out. No matter your goal, Arda will make sure you get exactly the right workouts to get there.

## 6.2 Adaptive Planner

A super-custom, super-smart training plan is all well-and-good, but we know it's not everything. While fitness and wellness are extremely important to you, if you're like most people, working out is not always your number one priority. You have a family, a career and hobbies. You deal with holidays, traffic, sickness, projects, deadlines and bad weather.

Life can make you miss workouts. And if you fall off track, it can be hard to find your way back. Without support it can often be easier to just abandon your plan altogether. Arda believes that it should be easy to achieve a fitness goal, especially in the context of a busy life.



That's why a key feature of Arda is the adaptive planning engine — the only workout re-scheduler in the world that fights to preserve the quality of your training plan. Arda plans can adapt not just in response to changes in your schedule but also in response to how fast you are improving. Arda will adjust the plan to make sure each and every workout you do is the absolute best use of your time and energy towards the fitness goal you have.

## 6.3 Workout Analyzer

The Workout Analyzer answers another important question about your exercise: how did you do? The answer to this is much more than a simple yes-no answer as to whether you did it, or how long you did it for — Arda is interested in two things: compliance and quality.

Compliance is comparing what you did to what you were supposed to do and Arda takes this seriously. It's not enough that you did the workout — was your effort right? Maybe you didn't complete the entire workout but did you at least get the most important bits done? Arda's compliance analysis asks these questions and answers them by comparing what it extracts from your data against what it has down as your plan.

But it's not just about monitoring for its own sake - Arda knows what good training looks like and wants to reward you for it. So maybe you didn't actually train as long as prescribed but Arda can tell that you tried hard to at least knock off the most important thing, so will reward your effort with tokens (see Section 8.5). Maybe you did everything as planned but knowingly worked yourself too hard. In that case Arda will know and your otherwise successful workout won't be as well-rewarded.

The pursuit of quality training and compliance that actually means something to your goal, requires that Arda does a lot more than just seeing how long you worked out for. It needs to classify, from your data, exactly when you were doing what, what your effort level was, and whether you did it right. This is very hard to do and is the reason most systems prefer to focus on quantity rather than quality.

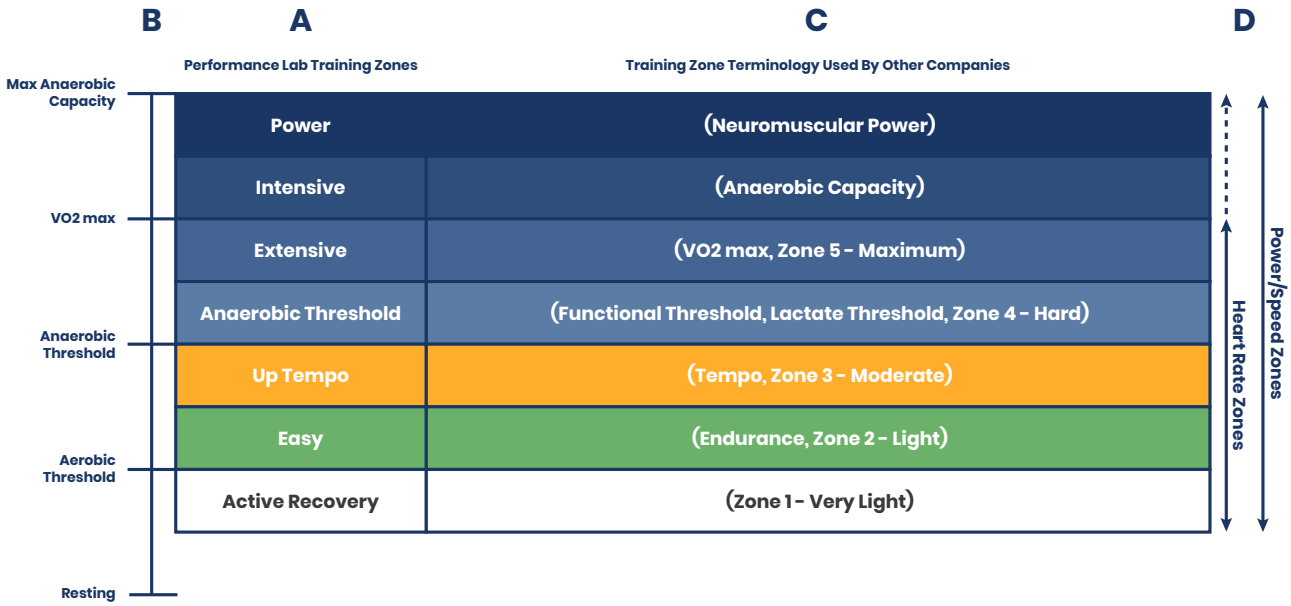
Arda handles this with its classification engine and library of intellectual property. The previous Section 5 covered the technical detail but the summary is that Arda is able to look at a combination of data streams to deduce what is going on as well as the intent behind it. It can also work out when something (like a high intensity phase) officially starts and when it ends (have you stopped the exercise, or are you just taking a break?).

The end result is valuable no matter your experience level. As someone new to exercise, Arda's Workout Analyzer — the classification and compliance engine — gives you valuable insight into how you can do better. As someone with more experience, the Analyzer provides new ways to slice and dice data, facilitating technical analysis about your performance that you wouldn't be otherwise be able to do without a human coach.

## 6.4 Fitness Monitor

Arda will help you analyze your fitness, performance and progress as you train. Given all the data floating around, users want access to an accurate picture of their capabilities. Using sophisticated machine learning and knowledge of human physiology, Arda processes your workout data to produce insights that not only tell you more about your body, but make it easier to train effectively.

Looking at data of what you're doing and how your body responds, Arda quickly works out exactly what your key inflection points are and produces personalized training zones to guide your effort. Just train normally and don't worry about doing a painful test which is the current way to get this information.



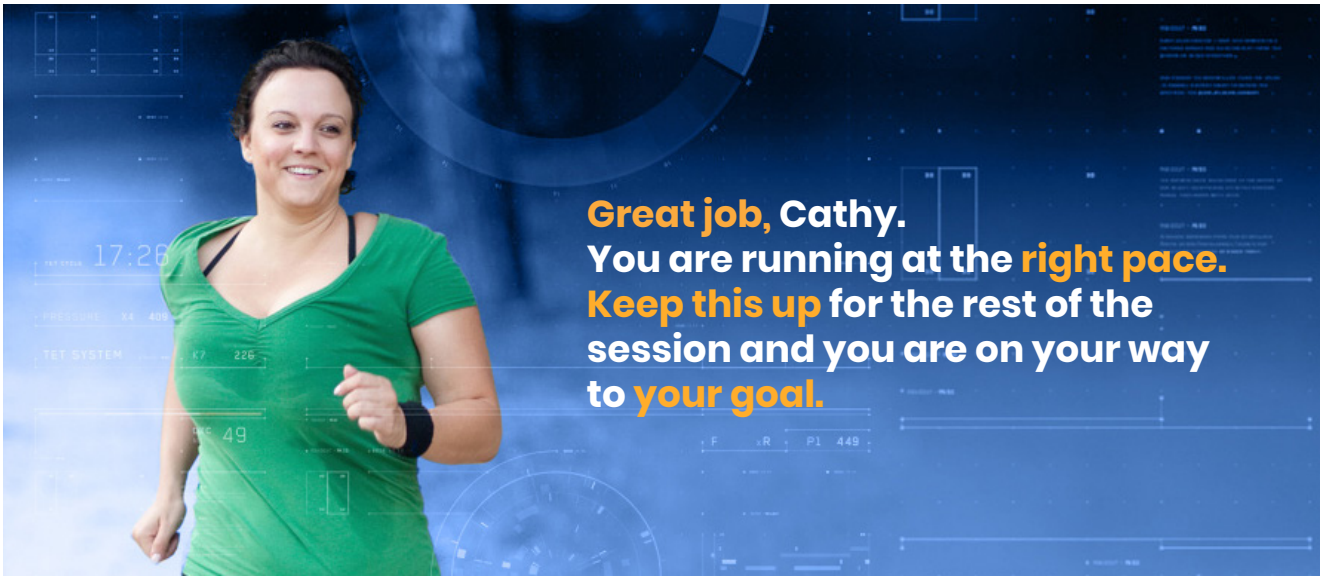

Along with effort zone guidance, Arda can also provide thorough analysis on your performance and assign a score based on how it is changing. Imagine starting a program and seeing an objective fitness score of 42, and watching it climb all the way to 60 by the end of your program. There's nothing more motivating than concrete evidence that your hard work has paid off.

Arda's analytical fitness monitoring means you can accurately measure your own progress — including all the ups, downs and fluctuations along the way. It even analyzes these ebbs and flows in the context of your training plan; is that dip expected? When can you expect a turnaround?

Getting the analysis done regularly will ensure your training is accurate, sustainable and coachable. Most importantly, you'll see exactly how much you've improved. Everyone wants to see the performance line on the graph start to go up!

## 6.5 Real-time Coach

An important part of health and wellness is the ability to exercise well — knowing not just what to do, but how to do it. Arda's capability extends beyond training plans, scheduling and advice to an in-workout companion that keeps you company, motivates you and makes sure your technique is right.




The Real-Time Coach experience is a standalone app that is integrated with all your other interactions with Arda and is a key source of useful data for Arda to later process and analyze for you.

An Arda experience is the only intelligent real-time training experience. There are plenty of "real-time coaching" products that are actually just personalities on a tape-recorder. At 60 seconds, you're told to speed up. You could be waiting to cross the road, you could be lying face down in a ditch, or sitting on the bus going home. but the "real-time coach" still enthusiastically says "Time to work! Let's pick up the pace!". These kinds of experiences are almost offensive to us at Performance Lab. Data should be interpreted to deliver a meaningful experience not obviously canned nonsense.

Our existing licensees, such as New Balance, Intel, Oakley and LifeBeam, understand this. Check out Vi from LifeBeam. Vi was the most successful Kickstarter campaign for a wearable — ever — raising $1.7m against a goal of only $100,000. When each of these partners made the decision to venture into real-time AI coaching, Arda was the choice.

# 7. Data Analytics

The Arda product line unlocks a comprehensive and unique fitness experience for users. It offers a collection of interactions that either do not exist in the marketplace or are poorly integrated with each other if they do.

Combined with the record of token movements through the Arda ecosystem, an entirely new and exponentially richer form of user intelligence is created. Arda Cloud Services will analyze all the transactions taking place in the system to produce insights about people in the health, fitness and wellness space that have never been captured before.

These insights will describe not just user transactions (programs or analyses bought) but their behavior while training. Looking at their interactions with partner merchandisers, we can start to understand better the relationship between the level of training enthusiasm or conscientiousness and their appetite for consumption. We will understand the links between different exercise groups and what motivates them, demotivates them, vulnerabilities and signals that they might want to drop off.

These kinds of insights are normally very hard to come by — they require large-scale cohort testing and surveys which are exceptionally costly to run, especially when using enough people to actually generate useful information. In the Arda ecosystem data owners choose to share their data, both because they are directly rewarded with tokens but also because it allows services and offers to be tailored to their unique needs.

The winner in business is always the one who knows the most; the sports, health or wellness company that knows the most about its customers is going to win. With knowledge derived from the Arda ecosystem, businesses will be able to create more targeted marketing, more intuitive products and more engaging user experiences. With Arda, it's the output of this analytics system that they will be able to purchase for tokens or at a premium with Fiat currency. Among other things, these businesses will know:

- What sort of training plans long-standing, loyal exercisers prefer.
- At what specific point new exercisers quit their training, as well as the main factors that keep them on track.
- The points in an athlete's training when they are the most positive and receptive and the points where they are the most frustrated.
- That their offers are reaching people who are improving and exercising more.
- How to modify their offer to people who have modified their training for specific health reasons.

Because of the additional resolution provided by the ARDA Coaching Modules, data consumers can run a range of sophisticated cohort analyses.

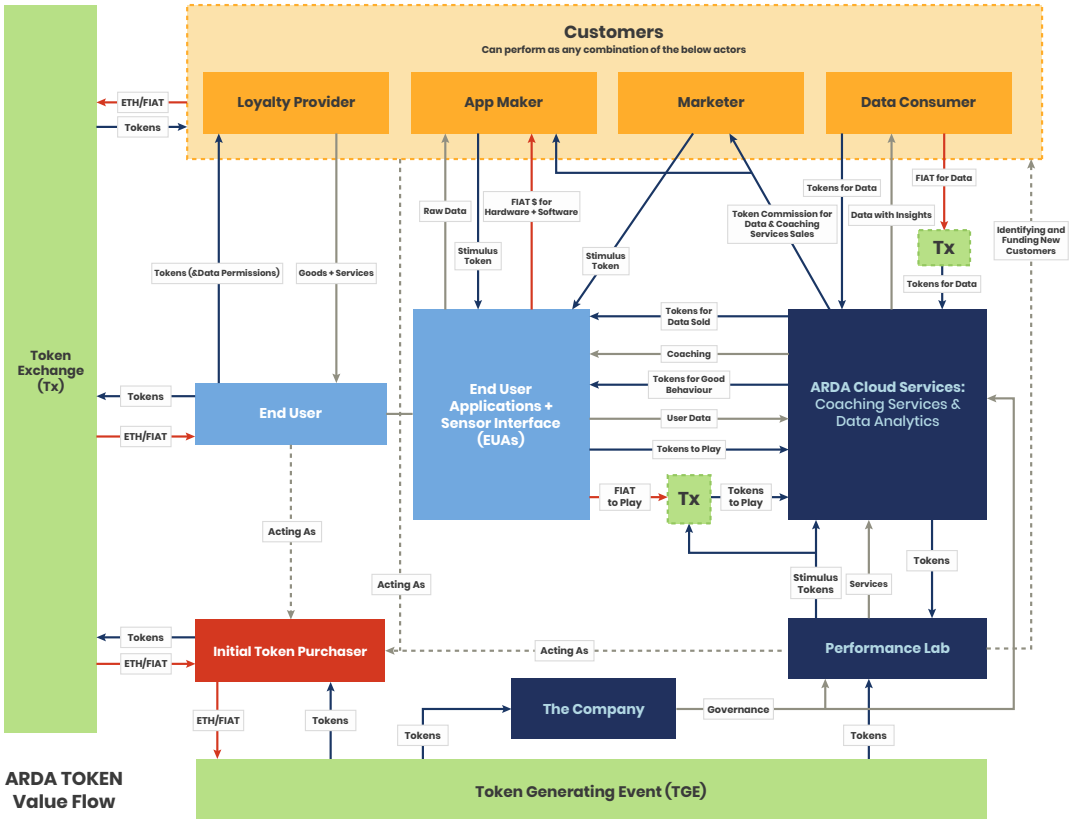
| Data | Cohort Information that enriches the data |
|---|---|
| Average performance improvement | Cohorts by:<br>• Phase of training<br>• Frequency of training<br>• Historical relationship with exercise<br>• Geography, gender or other demographics |
| Average user churn | |
| Average weekly compliance | |

# 8. The ARDAT Token

The Company, a subsidiary of Performance Lab, is introducing an ERC20 token based on the Ethereum Blockchain named the ARDAT Token. In this White Paper, an ARDAT Token refers only to the main token and not to the ARDAT Round A token sold by Performance Lab Technologies Limited in an early contribution round the ("Early Contribution Round"). In character the ARDAT Token is a utility token of fixed supply that is fractionally divisible. Like other tokens, the ARDAT Token is fungible and transferable (subject to the holding restrictions described in the relevant subscription agreements for ARDAT Tokens) and will be able to be traded on one or more token exchanges.

The ARDAT Token, the native token for accessing services via the Arda Coaching Modules (see Section 6), is also received by end users as a reward for good training behavior and as compensation for sharing their data with other actors in the ecosystem. Excess tokens can be traded by end users on a token exchange, or used to purchase goods through various loyalty schemes.

The ARDAT Token is also the basis for transactions in the Arda data ecosystem, enabled by the blockchain. Data customers use ARDAT Tokens to access data categorized and interpreted by Arda, collected from end users with their consent. These data insights can be used to fuel product development, marketing programs, research projects and to improve direct user interactions.




The ARDAT Token is a utility token in the sense that you need ARDAT Tokens to operate many of the modules/ applications in the Arda ecosystem and to create smart contracts with other actors that ensures the return of value to those who create it.

## 8.1 Implementation and ERC20

ARDAT Tokens will be implemented on the public Ethereum Blockchain as an ERC20 token.

The Ethereum Blockchain is currently the industry standard for issuing custom digital assets and smart contracts. The ERC20 token interface allows for the deployment of a standard token that is compatible with the existing infrastructure of the Ethereum ecosystem, such as development tools, wallets, and exchanges. Ethereum's ability to deploy Turing complete trustless smart contracts, enables complex issuance rules for cryptocurrencies, digital financial contracts and automated incentive structures. These advanced features and active ecosystem make Ethereum a natural fit for the ARDAT Token.

The ERC20 specification will be extended to track provenance of data and track transactions to ensure the only certain ARDAT Tokens can be used in the loyalty transactions.

## 8.2 ARDAT Token Allocations and Supply Schedule

To finance the scaling of the Arda Platform, it is currently proposed that the Company organize a token generating event (the "TGE") and distribute circa 328.5 million ARDAT tokens through a sale event but may issue further tokens at its discretion. This amount represents 36.5% of the total supply of ARDAT tokens of circa 900 million. The proceeds of this sale will be used to acquire all of the Arda Platform intellectual property from Performance Lab on an arm's length basis and to fund the ongoing operation of the Arda Platform.

Note that any ARDAT Round A tokens issued in an Early Contribution Round are not ARDAT Tokens –An ARDAT Round A token only represents a right to exchange that ARDAT Round A token for ARDAT Tokens at the relevant exchange rate specified in the ARDAT Round A token application letter. It carries no other rights, express or implied. In particular, an ARDAT Round A token does not entitle its holder to any right of ownership nor other interest in any entity, including Performance Lab or the Company, nor to any ownership of or interest in any asset, nor any right to any future revenues of or shares in Performance Lab or the Company. Holding an ARDAT Round A token does not guarantee that a TGE will occur or that any ARDAT Tokens will be issued. For avoidance of doubt, the Company did not have any involvement in the Early Contribution Round.

At the conclusion of the TGE, the distributed ARDAT Tokens will constitute the entirety of the available liquid supply. Another circa 225 million ARDAT Tokens will be issued to Performance Lab as consideration for the acquisition of the intellectual property comprising the Arda Platform and the provision of ongoing support services, on an arm's length basis. Performance Lab will not be able to sell or otherwise deal with its ARDAT Token allocation until after the second anniversary date of the end of the TGE period.

An additional circa 67.5 million ARDAT Tokens has been allocated to developers to ensure that they have an incentive to grow the platform moving forward.

The remaining circa 279 million ARDAT Tokens will be issued to the Company and held in reserve for use in strategically growing the Arda Ecosystem and to fund the ongoing operations and development of the Arda Platform and the Company.

| ARDAT Token Allocation | | |
|---|---|---|
| ARDAT Purchasers in the TGE | 36.5% | 328,500,000 |
| Performance Lab Technologies Limited (Founders) | 25% | 225,000,000 |
| Developers Reserve | 7.5% | 67,500,000 |
| Reserved by the Company | 31% | 279,000,000 |
| Total Tokens | | 900,000,000 |

Specifically, the Company will apply its allocation for four broad purposes:

1. Operational costs, infrastructure, developers
2. Sourcing and funding eco-system (both End Users and Data Consumers) participants that will enhance the Arda platform and ecosystem for all participants
3. Supporting and growing the Blockchain and Performance Lab developer community
4. Marketing and PR for the Arda platform

There will be a minimum 60-day lockdown where ARDAT Token holders cannot trade their tokens. Trading can only occur when the platform is fully operational and the Release Date has occurred, subject to the selling restrictions set out in the subscription agreement. Performance Lab and developers will be subject to a 24-month lockdown period.

Following the lockdown period, the supply of these coins will be entered into the market at a set rate e.g. 10% of the total supply per month.

## 8.3 Launch Summary

The aim is to raise the Ether equivalent of circa USD $27 million through the token generating event.

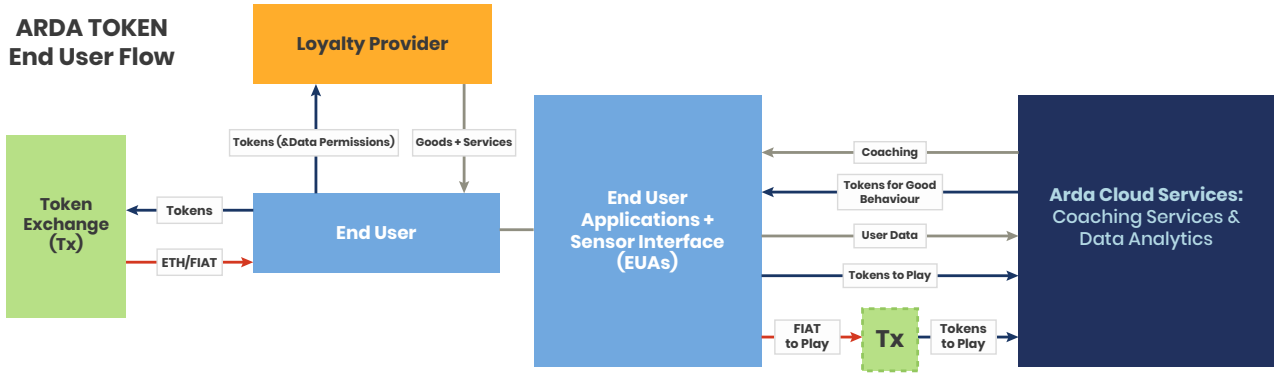
## 8.4 Token Sale Terms

The specific terms of the ARDAT Token sale are set up in the subscription agreements to be entered into between the Company and an applicant.

Small releases of ARDAT Tokens may occur at discounted prices to build demand.

## 8.5 ARDAT Token Flow for End Users

End users are any individuals that are using an End User Application (EUA) built on Arda technologies to generate exercise and health data (the "End User"). The value in this data is the basis for interactions with other actors in the system, providing value up the chain and returning some of that captured value to the End User. The inflows and outflows of value from an End User are described in the diagram and table below:

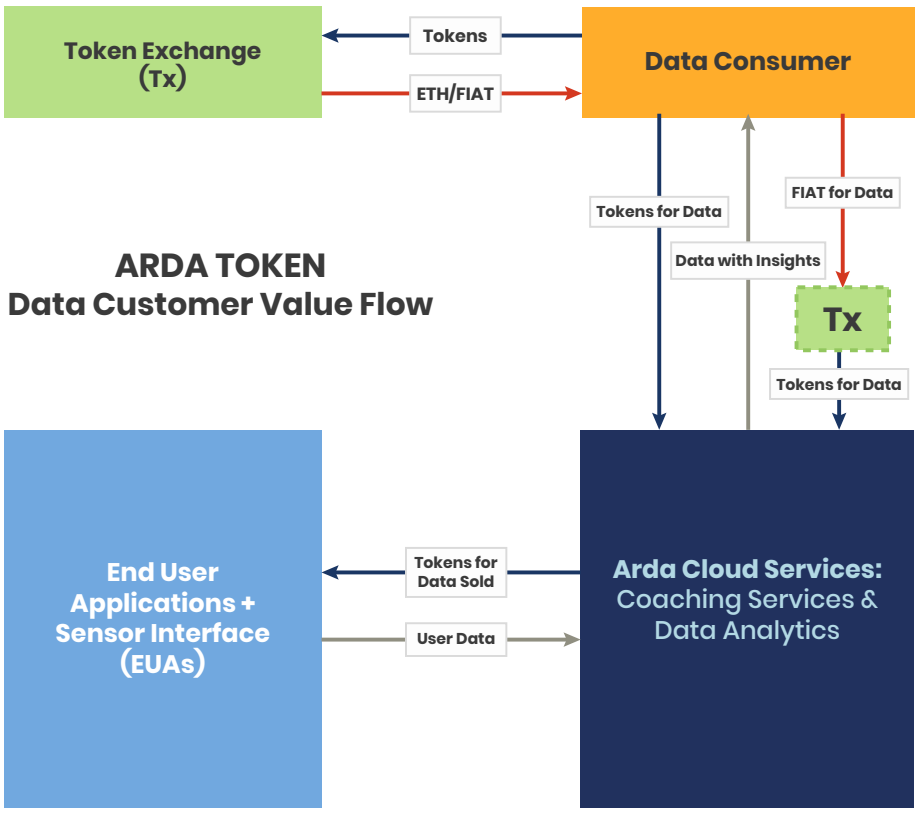



| End User Gives | Receives |
|---|---|
| Personal Exercise data | ARDAT Tokens for Good Training Behavior |
| | ARDAT Tokens for the Sale of Data |
| ARDAT Tokens for access to Coaching Features | ARDA Coaching Services |
| ARDAT Tokens for Rewards on Loyalty Schemes | Goods and Services |
| Fiat Currency for EUA + Sensors | ARDAT Token to play with + Product to use |
| ARDAT Tokens back to the Exchanget | Ether they can exchange for Fiat Currency |

## 8.6 ARDAT Token Flow for Data Consumers

A data consumer is any organization that is procuring analyzed data from Arda Cloud Services (ACS) (the "Data Consumer") . Some of these data consumers will be research institutes or government bodies but in many cases the purchasers of data are likely to have participated in the market as an app maker, a marketer or as a loyalty provider as well.

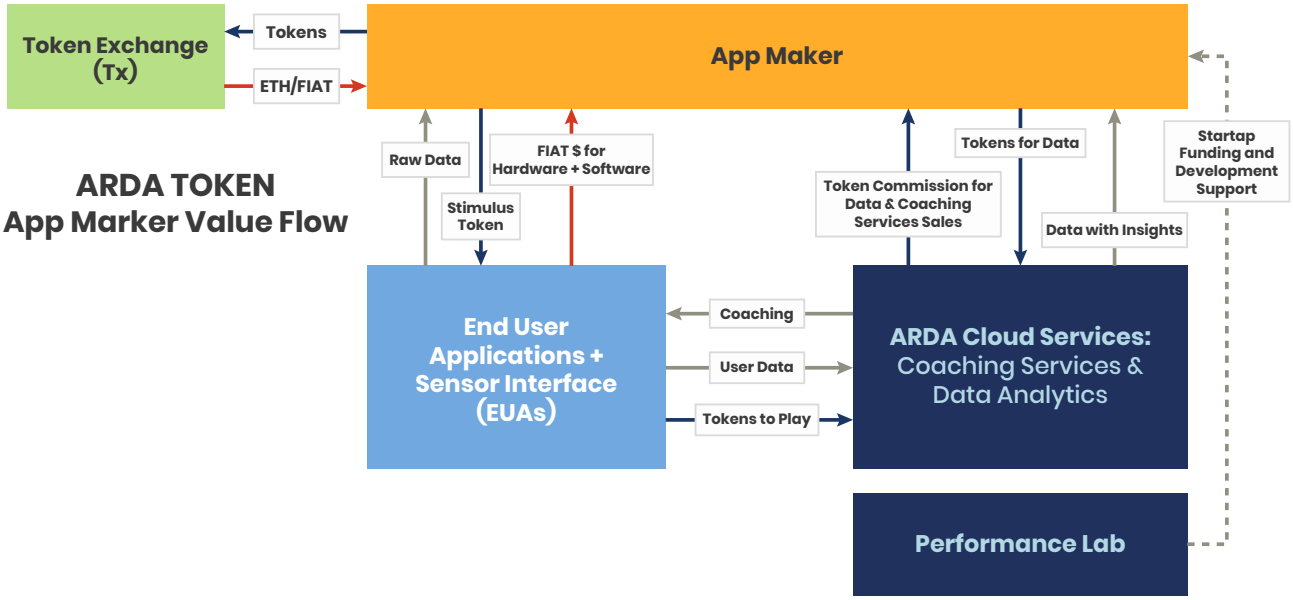
Data flows will be restricted and controlled by the end user. Returning tokens for data sold will act as an incentive for users to make their data available to as many interested parties as possible.




| Data Consumer Gives | Receives |
|---|---|
| ARDAT tokens for access to Data | Arda Analyzed End User Data |
| Fiat Currency for access to Data | |
| Ether or Fiat to an Exchange | ARDAT tokens from Exchange they can use to purchase analyzed Data |

## 8.7 ARDAT Token Flow for App Makers

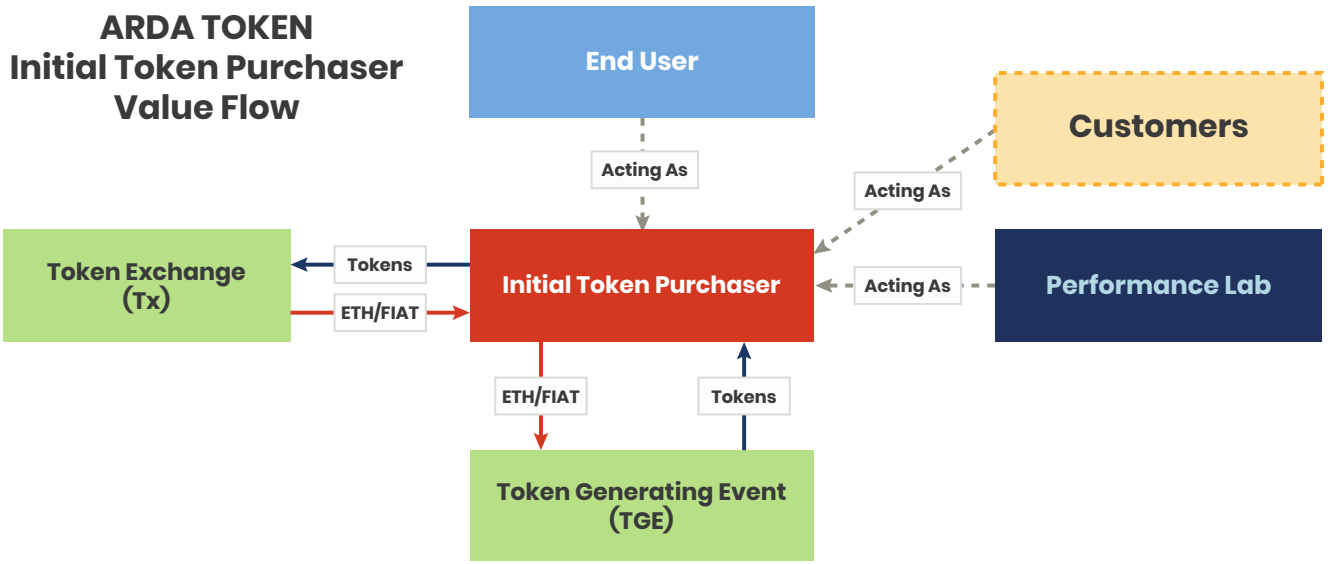
An app maker is any third-party organization that uses Arda Coaching Modules to produce an End User Application (EUA) that collects health and exercise data. These app makers are key players in growing the ecosystem. They produce the user-facing experiences and work to make End User participation in the ecosystem as easy as possible.




| App Maker Gives | Receives |
|---|---|
| Stimulus Token and access to Application to End User | Fiat from End User (optional) |
| | Raw Data the End User chooses to share |
| Effort to grow the market | ARDAT Token commission for sales of coaching services and data to other Data Consumers |
| | Startup funding (in ARDAT Tokens) and development support from the Company |
| ARDAT Tokens for access to Data (in order to learn about how to improve the App) | Arda Analyzed End User Data |
| Fiat Currency for access to Data | |
| Ether or Fiat to an Exchange | ARDAT Tokens from Exchange they can use to purchase analyzed Data |

## 8.8 ARDAT Token Flow for Initial ARDAT Token Users

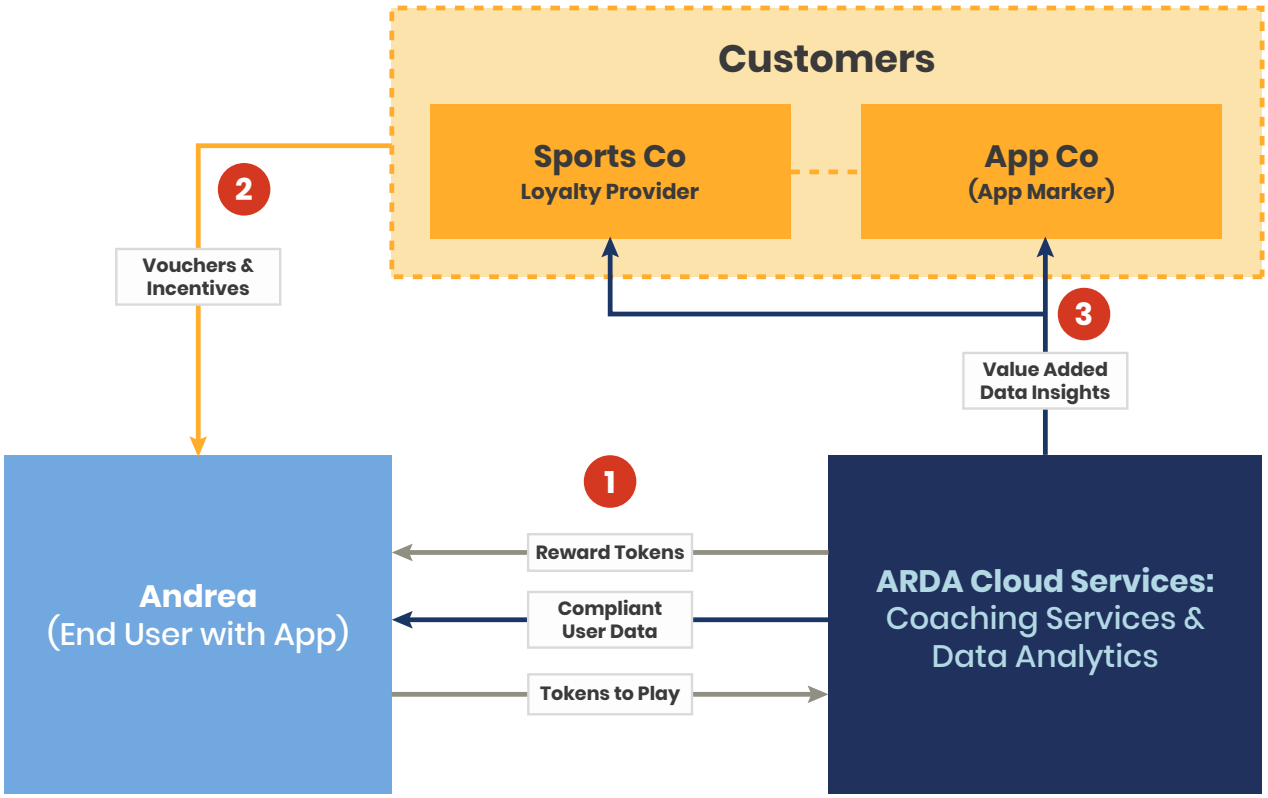
Initial ARDAT Token users are participating in the ongoing commercial viability and success of the Arda ecosystem. We expect many of these participants to be purchasing with the intent to use them as either customers or End Users for the utility value they will have now and at a future time. As demand for data (i.e. demand from Data Consumers) increases, there is more incentive for End Users to join the ecosystem and share their data. This makes the aggregate data richer and more valuable, which drives more demand from Data Consumers — and so on in a virtuous cycle.




| Initial Token Users Gives | Receives |
|---|---|
| Ether into the TGE | ARDAT Tokens |
| ARDAT Tokens in the Exchange | Ether they can trade for Fiat Currency |

In the following sections, to simplify and illustrate some of these ideas, we outline some basic case studies for how different actors in this ecosystem derive and drive value from engagement.

## 8.9 Case Study 1: End User "Andrea"

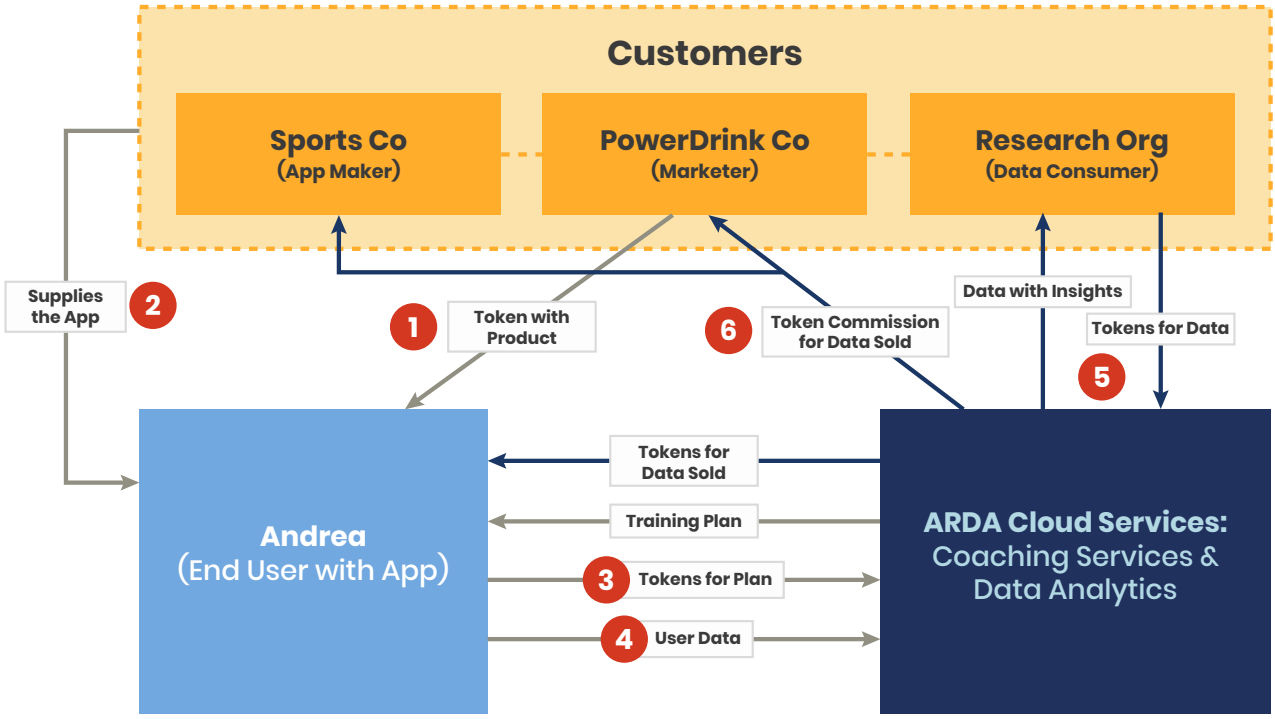



1. Andrea has been using her Arda enabled running app to track her performance over the last couple of months. Because she is so compliant with her training, she gets back many of the tokens she spent on the service as a reward for good behavior which keeps her motivated to train smart and consistently.

2. Because Andrea is so consistent with her active lifestyle, App Co incentivizes her with their Sports Co brand partnership by including her in their co-branded loyalty program. Here she gets vouchers and incentives to use on Sports Co gear while she trains.

3. Sports Co knows that customers who earn loyalty points from regular training spend three times as much with them as the average customer each year and are twice as likely to recommend their gear to other runners. So they are happy to support Andrea because they understand the payback.

## 8.10 Arda Case Study 2: Marketer "Powerdrink Co"




1. Powerdrink Co gives away tokens with their Powerdrink that are coded to be used for training programs. They want their customers to train smarter (see payback from Andrea above). Powerdrink Co also wants a way to understand the type of exercise that their users are doing and how well they are performing.

2. Powerdrink Co forms a partnership with a big brand, Sports Co, so the token can be used with Sports Co's application to track a user's activity and provide coaching.

3. The End User (Powerdrink Co's customer, Andrea) spends her token within the app to get a training program that is specifically tailored to her needs. It's great value for something she got for free with a drink and makes her think that Powerdrink Co and Sports Co are pretty awesome. She sees that she can also spend tokens on getting fitness assessments and subscription to advanced coaching features.

4. As she exercises, Andrea's data is sent to the cloud for analysis. Her data is transformed into rich insights including exactly what training she did, her current level of fatigue state, her fitness improvement trends, technique weaknesses and strong predictions for how long she is likely to continue engaging in exercise.

5. Because of the value in this sort of data, Research Org wants to include her and many users like her data in a health study looking long term BMI reduction using rewards for best practice training. For this data set they pay Andrea in tokens (if she accepts — she is in control over who gets to see her data). Sports Co and Powerdrink Co are also interested in the data to improve their marketing efforts.

6. Because of the value created by the additional data, some of the revenue is re-distributed to everyone who helped bring the data in — each actor can now use these additional tokens to help pay for other things they want to do, which further incentives the other actors:

- Sports Co wants to make its app better so that users create even more valuable data.
- Powerdrink Co can purchase Arda analyzed data to understand their specific customers more.
- The End User, Andrea, invests in a new program to reach her next goal and thus produce even more data.

## 8.11 Risks summary

The key risks summarized in this section are not intended to be an exhaustive list of the risks that may apply to you as a purchaser or holder of ARDAT Round A Tokens (defined as ERC-20 compliant tokens to be implemented on the public Ethereum Blockchain the sole function of which is to convert into ARDAT Tokens upon the completion of the TGE (if and to the extent that the TGE takes place)) or ARDAT Tokens (the "Applicant"). You should read these key risks and consider whether you are willing to assume such risks before you agree to subscribe for ARDAT Round A Tokens and/or ARDAT Tokens. You should seek professional advice (whether legal, finance, tax, technical, operational or otherwise) prior to you making your decision as to whether to subscribe for ARDAT Round A Tokens and/or ARDAT Tokens.

### (1) Definitions

In this Risks summary section, unless the context requires otherwise:

**"Completion Date"** means September 30 2018 or such other date(s) as the Company may determine in its sole and absolute discretion;

**"ETH"** means ether, which is the value token of the Ethereum Blockchain;

**"IES"** means the International Enterprise Singapore;

**"MAS"** means the Monetary Authority of Singapore;

**"PLL"** means Performance Lab Technologies Limited (registration number 1340713) a company incorporated in New Zealand and having its registered address of 19 Byron Avenue, Takapuna, Auckland 0622, New Zealand.

**"Purchase Price"** means the spot Ether equivalent of USD 0.12 (or such other price as the Company may determine from time to time), as determined by the Smart Contract System polling the USD/ETH rate on CoinmarketCap or such other independent source of cryptocurrencies exchange rates selected by the Company in its sole and absolute discretion on Completion Date.

**"Regulated Products"** means any and all of the following:

(a) "securities" as defined under Sections 2(1) and/or 239(1) of the Securities and Futures Act (Chapter 289 of Singapore);

(b) "futures contract" as defined under paragraph (b) of the definition of "futures contract" under Section 2(1) of the Securities and Futures Act (Chapter 289 of Singapore);

(c) contracts or arrangements for the purposes of "leveraged foreign exchange trading" as defined under the Section 2(1) of the Securities and Futures Act (Chapter 289 of Singapore);

(d) "commodity contract" as defined under Section 2 of the Commodity Trading Act (Chapter 48A of Singapore); or

(e) contracts for the purchase or sale of any "commodity" (as defined under Section 2 of the Commodity Trading Act (Chapter 48A of Singapore)) by way of "spot commodity trading" (as defined under Section 2 of the Commodity Trading Act (Chapter 48A of Singapore));

**"*Smart Contract*"** means any program code deployed, or procured to be deployed by the Company or any third party in relation to or in connection with the TGE and/or the ARDAT Tokens;

**"*Smart Contract System*"** means the TGE smart contract system located on the Ethereum blockchain and includes any platform, system or wallet whether controlled, delivered, or made accessible by a third party or any third party system or otherwise in connection therewith and includes such other third party system (in each case, designed, hosted, managed, maintained or made accessible by third parties) including such third party systems that the Applicant may interface with;

**(2) Risk factors**

***System risk of subscription interface:*** There can be possible delays, failure or inability to submit an offer to subscribe for ARDAT Round A Tokens or ARDAT Tokens in time for a variety of reasons including but not limited to the Applicant's own act or omission, technical and/or operational glitches, system or network overloads arising from or in connection with the Ethereum network, any other platform or otherwise.

***No assurance of returns or benefits:*** There can be no assurance that the Applicant as a purchaser or holder of ARDAT Round A Tokens or ARDAT Tokens will be able to receive a return of its capital or any returns or benefits. The Applicant should therefore only consider the purchase of ARDAT Round A Tokens or ARDAT Tokens if it can afford a total loss on the entire amount invested.

***Market risk:*** The value of cryptocurrencies can go down as well as up. The emergence of a new business model can create opportunities for users and investors, but any young market carries significant risks for all of its participants. Past performance is not a reliable indicator of future performance, and investors may not recover the full amount invested.

***Regulatory risk:*** Regulation of digital tokens (including the ARDAT Round A Tokens and ARDAT Tokens) and token offerings, cryptocurrencies (including ETH), blockchain technologies (including the provision of financial services using such technologies), and cryptocurrency exchanges, among other things, are relatively undeveloped and likely to rapidly evolve, and vary significantly among various jurisdictions and are subject to significant uncertainty.

New or changing laws and regulations or interpretations of existing laws and regulations may adversely impact the liquidity and market price of ARDAT Round A Tokens and/or ARDAT Tokens, the ability to provide certain services via, or conduct certain activities on, the ARDA Platform, the Applicant's ability to access marketplaces on which to trade ARDAT Round A Tokens and/or ARDAT Tokens, the Company's, PLL's, and their affiliates and related corporations' (collectively, the "ARDA Entities") ability to operate as an ongoing concern, and the structure, rights and transferability of ARDAT Round A Tokens and/or ARDAT Tokens. The ability of the Applicant to access, use, transfer and exchange its ARDAT Round A Tokens and/or ARDAT Tokens may be affected by changes to legislation, regulatory guidance or actions, and judicial decisions in Singapore and in other countries. Therefore, there can be no assurance that any new or continuing regulatory scrutiny or initiatives will not have an adverse impact on the value of ARDAT Round A Tokens and/or ARDAT Tokens and otherwise impede the ARDA Entities' activities.

***No regulatory protection:*** The Company is not licensed or approved by the MAS nor the IES, and currently there is no intention for the Company to apply for any financial services license or regulatory approval under the laws and regulations of Singapore. In addition, ARDAT Tokens do not constitute, and are not characterised as, any of the Regulated Products. Therefore, the Applicant will not be able to invoke or avail itself of any regulatory protection or remedies applicable in respect of such Regulated Products under the laws and regulations of Singapore, in relation to their purchase, holding or trading of ARDAT Tokens.

***Legal risk:*** There is little or no precedent on how existing laws might treat the issue, fungibility, settlement finality, transfer, collateralization, sequestration, loan, hypothecation, redemption or other disposition of ARDAT Round A Tokens and ARDAT Tokens. There is also little or no precedent on how existing laws might treat the rights and obligations between and among the Company and the Applicant as a purchaser or holder of ARDAT Round A Tokens or ARDAT Tokens. The occurrence of any related issue or dispute could have a material adverse effect on the ARDA Platform, ARDA Entities' businesses and/or the ARDAT Tokens. New developments in the laws and regulations may also adversely affect the legal or regulatory treatment of the ARDAT Round A Tokens, ARDAT Tokens or the ARDA Platform and/or the ARDA Entities' businesses.

***Tax risk:*** The tax characterization of ARDAT Round A Tokens and ARDAT Tokens is uncertain and the Applicant should consult its own tax advisors regarding the tax consequences of its acquisition, holding, trading or disposal of ARDAT Round A Tokens or ARDAT Tokens. An investment in ARDAT Round A Tokens or ARDAT Tokens may result in adverse tax consequences to the Applicant. The Applicant should consult with and must rely upon the advice of its own tax advisors with respect to the tax consequences whether of Singapore or elsewhere of an investment in ARDAT Round A Tokens or ARDAT Tokens, and is wholly responsible for understanding and meeting all their tax obligations whether of Singapore or elsewhere in relation to their acquisition, holding, trading or disposal of ARDAT Round A Tokens or ARDAT Tokens. Any payments that are made by the Company to any ARDAT Round A Token holder or ARDAT Token holder will be made after the deduction of any withholding taxes, if so applicable, whether of Singapore or elsewhere. If any Singapore goods and services tax at the rate of 7% (or such other rate as required by law) is chargeable on the issuance of any ARDAT Round A Tokens or ARDAT Tokens by the Company, holders that purchase such ARDAT Round A Tokens or ARDAT Tokens shall bear such Singapore goods and services tax in addition to the Purchase Price.

***Company risk:*** The Company was incorporated on Sept 30th 2018 and has not commenced operations. The Company is subject to all of the business risks and uncertainties associated with any new business.

***Lack of voting and liquidation rights:*** ARDAT Round A Tokens and ARDAT Tokens do not carry any voting, management or control rights or other management or control rights in the Company. Accordingly, the shareholders of the Company will control decisions of the Company, including any significant corporate transactions, or the election to liquidate or dissolve the Company. In addition, upon a liquidation, bankruptcy or other dissolution of the Company, the Applicant as a purchaser or holder of ARDAT Round A Tokens or ARDAT Tokens will highly likely not be entitled to liquidation rights or other claims.

***Key Person risk:*** Whilst PLL and the Company takes an active role to managing key man risk through training, systemization and succession planning there is still a risk that loss of a key team member could cause delays to the ARDA Platform development and thus having a detrimental effect on price of ARDAT Round A Tokens and/or ARDAT Tokens.

***Technology and Coding risk:*** Blockchain and smart contract technology is still in an early development stage and its application of experimental nature which carries significant operational and technological risks. It is possible that the Smart Contract, the Smart Contract System or elements of the ARDA Platform, could contain weaknesses, vulnerabilities or bugs which could cause, inter alia, the complete loss of the Applicant's utility and/or the value of the ARDAT Round A Tokens, ARDAT Tokens and/or the ARDA Platform by impacting on their operation and functionality. Outside actors may exploit such errors or vulnerabilities for personal gain or the ARDAT Round A Tokens, ARDAT Tokens and/or ARDA Platform may be affected in any event without such action.

***ARDA Platform risk:*** While the ARDA Entities are procuring the development of the ARDA Platform, there is no assurance that the ARDA Platform will be designed or completed in the manner described in the ARDA Whitepaper and if the ARDA Platform is completed, there is no assurance as to the continued operation and functioning of the ARDA Platform. The ARDA Platform is subject to change and no representation is given that the any function or aspect of the ARDA Platform will continue to be provided or made available at any time.

***Trading/Valuation risk:*** As a utility token, the inherent value of ARDAT Tokens and correspondingly, the ARDAT Round A Tokens is derived from the successful operation of the ARDA Platform. ARDAT Round A Tokens and ARDAT Tokens are not pegged to any fiat currency (legal tender backed by a sovereign government) nor any cryptocurrency, and the exchange value from time-to-time given to ARDAT Round A Tokens or ARDAT Tokens on third-party exchanges may not always reflect the Applicant's intrinsic valuation of the ARDAT Round A Tokens or the ARDAT Tokens. The risk of loss when purchasing or disposing of ARDAT Round A Tokens and ARDAT Tokens could be substantial and losses may compound quickly (including up to total loss). As a token built on top of the Ethereum network, the value of ARDAT Round A Tokens and ARDAT Tokens may be affected by the valuation from time-to-time of Ether against fiat currencies and other cryptocurrencies.

***Illiquidity risk:*** No ARDAT Tokens will be issued after the TGE, although the reserve ARDAT Tokens held by the Company and the ARDAT Tokens held by the Company will be released over time to the market. Should the Applicant wish to temporarily, permanently or partially exit the ARDA Platform ecosystem, it may be unable to liquidate its position by exchanging ARDAT Tokens for fiat currency or cryptocurrency as there may not be a willing buyer for its ARDAT Tokens both in terms of price and volume. The Applicant as a holder of ARDAT Tokens has no right to redeem or sell its ARDAT Tokens. Although the Company intends to list the ARDAT Tokens on several cryptocurrency exchanges, there can be no assurance that such exchanges will accept the listing of ARDAT Tokens or maintain the listing if it is accepted. There can be no assurance that a secondary market will develop or, if a secondary market does develop, that it will provide the Applicant with liquidity of investment or that it will continue for the life of the ARDAT Tokens. There is also no guarantee from any central bank or centralized authority for ARDAT Tokens that ensures the Applicant will be able to redeem its ARDAT Tokens for fiat currency or cryptocurrency. Furthermore, the digital token market is a new and rapidly developing market which may be subject to substantial and unpredictable disruptions that cause significant volatility in the prices of digital tokens. There is no assurance that the market, if any, for the ARDAT Tokens will be free from such disruptions or that any such disruptions may not adversely affect the ability of the Applicant as a holder of ARDAT Tokens to sell its ARDAT Tokens.

***Network risk:*** ARDAT Round A Tokens and ARDAT Tokens are ERC20 compliant tokens built on top of the Ethereum network, a decentralized network containing, among other things, both cryptocurrency and smart contract protocols. None of the ARDA Entities has control over the Ethereum network, including confirmations of transactions and execution of smart contracts on the network. Should the Ethereum network experience temporary or permanent issues, including network slowdowns or transaction confirmation delays, this is likely to affect the ability of the Applicant as a holder of ARDAT Round A Tokens or ARDAT Tokens to freely use ARDAT Round A Tokens or ARDAT Tokens (as the case may be) within the ARDA Platform's ecosystem and could impair the usability of the ARDA Platform generally.

***Cyber security risk:*** The nature of ARDAT Round A Tokens, the ARDAT Tokens and the Ethereum network may lead to an increased risk of fraud or cyber attack and may mean that technological difficulties experienced by the developers and users of the ARDA Platform ecosystem could prevent access to or use of the Applicant's ARDAT Round A Tokens or ARDAT Tokens. For example, it is possible that an unauthorized third party could exploit a coding vulnerability in the ARDA Platform code and damage, interrupt or otherwise attack it.

***Private Key risk:*** Extreme caution must be taken whenever selecting, storing or transmitting private keys for ARDAT Round A Tokens or ARDAT Tokens. The Applicant is responsible for the storage of its ARDAT Round A Tokens or ARDAT Tokens. If another person obtains access to the Applicant's private keys, they can steal its ARDAT Round A Tokens, ARDAT Tokens or other cryptocurrency it uses to purchase ARDAT Round A Tokens or ARDAT Tokens. Furthermore, if the Applicant loses access to its private keys, neither the ARDA Entities nor any other entity will be able to recover the Applicant's lost ARDAT Round A Tokens, ARDAT Tokens or cryptocurrency. If the Applicant holds ARDAT Round A Tokens or ARDAT Tokens on a cryptocurrency exchange, the private keys to those ARDAT Round A Tokens or ARDAT Tokens is held by that exchange. Should that exchange be hacked or otherwise compromised, the Applicant's ARDAT Round A Tokens or ARDAT Tokens may be stolen or otherwise become inaccessible.

***Wallet risk:*** Should the Applicant attempt to send ARDAT Round A Tokens or as the case may be, ARDAT Tokens to a wallet type that does not support ARDAT Round A Tokens or as the case may be, ARDAT Tokens, its ARDAT Round A Tokens or as the case may be, ARDAT Tokens may be lost forever.

***Broker, dealer or exchange insolvency risk:*** There is risk that brokers, dealers, exchanges or wallets could become insolvent or otherwise become insecure. There may be practical or timing problems associated with enforcing the rights to assets in the case of an insolvency or security disruption of any such party.

***Financial risk:*** If the solvency of any of PLL or the Company is impaired, the ongoing viability of the ARDA Platform and the utility and value of the ARDAT Round A Tokens and/or ARDAT Tokens may be impaired.

**General risks:**

The growth of the blockchain industry in general, as well as the blockchain networks on which the Company rely, is subject to a high degree of uncertainty. The performance of the ARDA Platform is subject to the following uncertainties, among others:

(a) worldwide growth in the adoption and use of Bitcoin ("BTC"), ETH and other blockchain technologies;

(b) government and quasi-government regulation of BTC, ETH and other blockchain assets and their use, or restrictions on or regulation of access to and operation of blockchain networks or similar systems;

(c) the maintenance and development of the open-source software protocol of the BTC or ETH networks;

(d) changes in consumer demographics and public tastes and preferences;

(e) the availability and popularity of other forms or methods of buying and selling goods and services, or trading assets including new means of using fiat currencies or existing networks;

(f) general economic conditions and the regulatory environment relating to cryptocurrencies and digital tokens;

(g) hacking and theft of cryptocurrencies and digital tokens; and

(h) popularity or acceptance of the BTC or ETH networks and the emergence of new cryptocurrencies, digital tokens and blockchain networks.

The price of BTC, ETH, digital tokens and other blockchain assets are subject to dramatic fluctuations. Several factors may affect price, including, but not limited to:

(a) global blockchain asset supply;

(b) global blockchain asset demand, which can be influenced by the growth of retail merchants' and commercial businesses' acceptance of blockchain assets like cryptocurrencies as payment for goods and services, the security of online blockchain asset exchanges and digital wallets that hold blockchain assets, the perception that the use and holding of blockchain assets is safe and secure, and the regulatory restrictions or prohibitions on their use;

(c) investors expectations with respect to the rate of inflation;

(d) changes in the software, software requirements or hardware requirements underlying a blockchain network;

(e) changes in the rights, obligations, incentives, or rewards for the various participants in a blockchain network;

(f) currency exchange rates, including the rates at which ETH and BTC and other cryptocurrencies or digital tokens may be exchanged for fiat currencies;

(g) fiat currency withdrawal and deposit policies of blockchain asset exchanges and liquidity on such exchanges;

(h) interruptions in service from or failures of major blockchain asset exchanges;

(i) investment and trading activities of large investors, including private and registered funds, that may directly or indirectly invest in blockchain assets;

(j) monetary policies of governments, trade restrictions, currency devaluations and revaluations;

(k) regulatory measures, if any, that affect the use of blockchain assets;

(l) the maintenance and development of the open-source software protocol of the BTC or Ethereum networks;

(m) global or regional political, economic or financial events and situations; and

(n) expectations among blockchain participants that the value of blockchain assets will soon change.

Blockchain networks are based on software protocols that govern the peer-to-peer interactions between computers connected to these networks. The suitability of the networks for the ARDA Entities' businesses or the functionality of the ARDAT Round A Token and ARDAT Token depends upon a variety of factors, including:

(a) the effectiveness of the informal groups of (often uncompensated) developers contributing to the protocols that underlie the networks;

(b) effectiveness of the network validators and the network's consensus mechanisms to effectively secure the networks against confirmation of invalid transactions;

(c) disputes among the developers or validators of the networks;

(d) changes in the consensus or validation schemes that underlie the networks, including shifts between so-called "proof of work" and "proof of stake" schemes;

(e) the failure of cyber security controls or security breaches of the networks whether on the ARDA Platform or technological assets, or the Applicant's / third party network or devices, and the associated risks of legal action or actions of regulators relating to loss of data, damage to data / devices, threat or compromise to privacy and data protection, and the occurrence of fraud or harm;

(f) the existence of other competing and operational versions of the networks, including without limitation so-called "forked" networks;

(g) the existence of undiscovered technical flaws in the networks;

(h) the development of new or existing hardware or software tools or mechanisms that could negatively impact the functionality of the systems;

(i) the price of blockchain assets associated with the networks;

(j) intellectual property rights-based or other claims against the networks' participants and risks associated with such legal claims (including but not limited to the risk that the operation of the ARDA Platform is disrupted by such claims including claims for remedies such as injunctions); and

(k) the maturity of the computer software programming languages used in connection with the networks.

Unfavorable developments or characteristics of any of the above circumstances could adversely affect the ARDA Entities' businesses, the ARDA Platform or the proper functioning of the ARDAT Round A Tokens or ARDAT Tokens.

# 9. Technology and Architecture

Unlike many ICO prospects, Performance Lab and the ARDA platform are a going proposition. Our core technologies are being used commercially by companies such as Oakley, Lifebeam and Centrality.ai and we have co-developed an existing app using our technology that is also integrated with the Blockchain.

## 9.1 Main components in this system

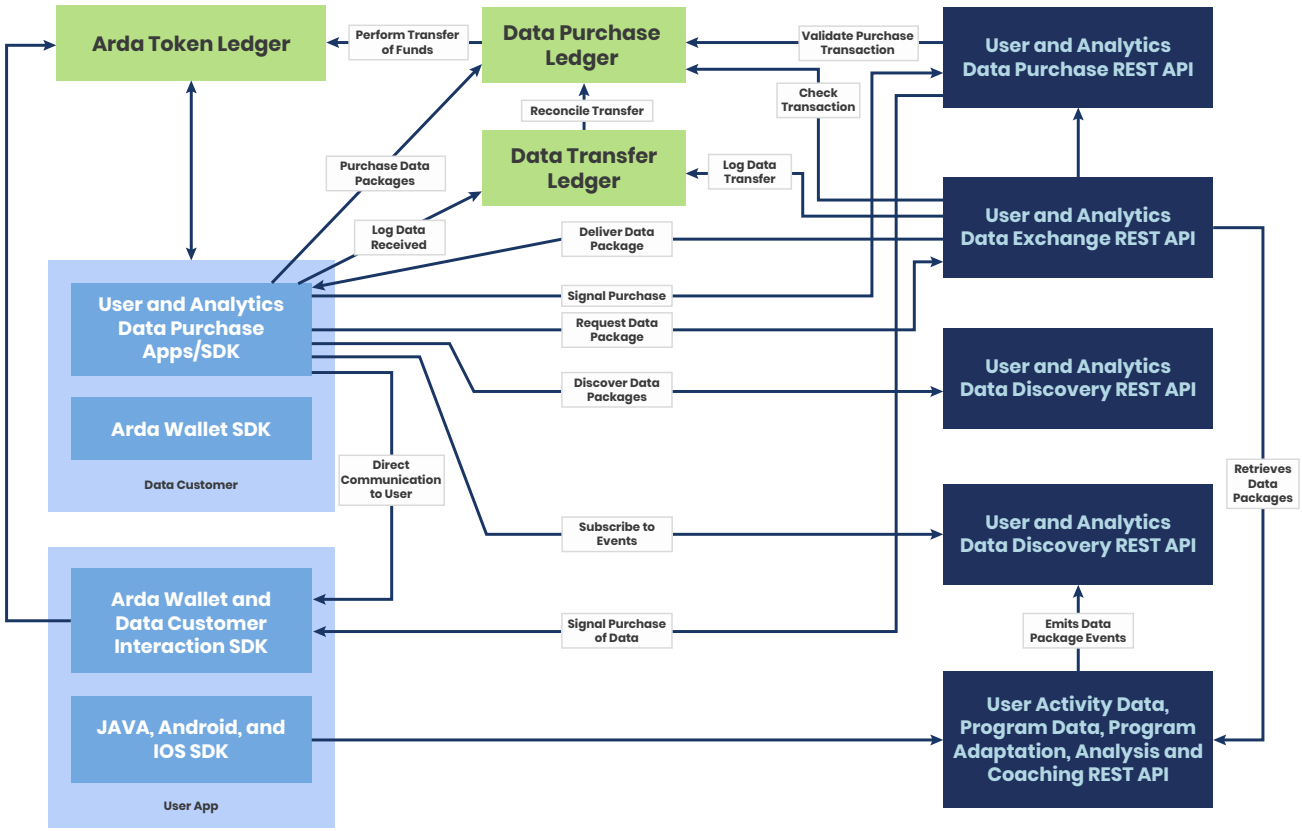
- User Arda Wallet
- Data Customer Purchase App
- Data Customer Arda Wallet (could just be a User ARDA Wallet)
- Arda Cloud Services

To support the ARDAT Token ecosystem, we will be developing the following:

- Smart contract for the ARDAT Token itself
- Smart contract for Data Purchase by Data Customers
- Smart contract for Data Transfer Reconciliation
- User and Analytics Data Exchange API
- User and Analytics Data Purchase API
- User and Analytics Data Discovery API
- User and Analytics Data Events and Subscription API
- Arda Wallet App and SDK (for User platforms)
- User and Analytics Data Purchase Apps/SDK (for Data Customer platforms)
- Process and method for packaging of user data into forms relevant to data customers

The Ethereum Blockchain is used in this platform for:

- Creating the system needed to implement the “rewards for good behavior” discussed in this document.
- Providing applications for users and data consumers to connect, transact, and communicate
- Providing guarantees of delivery between data customers and users
- Providing anonymity for individual users
- Providing an independently auditable record of all transactions outside of Data Customers, Users, and Performance Lab processes and applications




## 9.2 User and Analytics Data Purchase Apps/SDK

- Is a "light" Ethereum client
- These are applications and SDK (for building apps) that allow for the purchase of Arda data
  This data is either individual user data or population level analytics outputs
- It is necessarily for this to be client side (in the data customers space) so that they can maintain their own private keys and we don't need to store and be trusted with them
- Given a URI for a data package, this application/SDK performs the purchase of the data
- Only the true user can perform this as they sign the transaction with their local private key
- User and Analytics Data Purchase REST API is notified of the transaction
- Data is accessed and retrieved through the User and Analytics Data Exchange REST API
- Data received is marked as complete with the data transfer ledger
- Data Customers can send messages and reward content to individual users

## 9.3 Arda Wallet and Data Customer Interaction SDK

- Is a "light" Ethereum client
- Maintains a balance of the user's tokens
- Receives notifications that transactions have happened and data transferred
- Provides interface for receiving Data Customer rewards (e.g. a voucher, etc) via Ethereum Whisper

## 9.4 Arda Cloud Services (ACS)

A system of services providing:

- Activity data processing, analysis and coaching
- Program creation, storage, workout reconciliation and adaptation
- Population level data analytics
- Searchable and event based API for finding and connecting with data available for purchase
- Notifications of data purchase
- Data transfers to Data Customers
- Providing token rewards back to Users in response to their activity progress

***User Activity Data, Program Data, Program Adaptation, Analysis and Coaching REST API***
***We currently have an implemented REST, Java, and Objective-C API for:***

- Creating and adapting programs
- Processing workout activity data and providing coaching feedback
- Storing and retrieving user workout and program data
- Accessing historical analysis of activity data
- Exposing data interfaces for analytics and improved knowledge in machine learning algorithms

***User and Analytics Data Purchase REST API***

- Is notified of a transaction for the purchase of data
- Notifies end user of the transaction
- Can validate the transaction is valid and that the data has not been retrieved yet

***User and Analytics Data Exchange REST API***

- Data Customer app requests data package for URI (providing their Arda Ethereum Identifier signed with their private key for identifier verification)
- ACS checks Data Purchase Ledger to make sure this ID can receive the data package (and has not already received it)
- If successful, returns data package (See data packet delivery)
- Actual data delivery across REST API
- Logs Data Transfer complete (this should be matched by a log of data received in the Data Customer app)
- API will be secured with SSL

***User and Analytics Data Discovery REST API***

Provides:

- Query API to discover data available
- Metadata with identifiers required for purchase and request for data packages

***User and Analytics Data Events and Subscription REST API***
Certain types of data events will be produced for Data Customers

- Notifications to various parties that you have done an activity
- Notification of raw data
- Notification of processed raw data which has context and interpretation added
- Notifications of what is planned for today
- Anonymized population level data

## 9.5 JAVA, Android, and IOS SDK

This is available for, and has current production clients implemented in, watches, phones, tablets and server processes.

Contains:

- Real-time activity tracking and coaching engine
- Data logging API which in turn uses our ACS REST API but means third party developers don't need to implement data serialization/deserialization and network protocols
- Program generation, integration with workouts and adaptation based on physiological analysis and user requirements

## 9.6 Ethereum Smart Contracts

***Data Transfer Ledger***

- Records the transfer of an identified data package between two parties
- Updates Data Purchase Ledger to reflect that a particular Data Purchase has been successful

***Data Purchase Ledger***

- Records purchases between two parties of specific data packages
- Contains a record of whether the purchase and transfer of data has been completed

***ARDAT Token Ledger***
Is the base Smart Contract for ARDAT Tokens

## 9.7 Mitigating Improper Use of Platform

As discussed in Section 5.1 and the end of Section 3, Arda has proprietary filters and classification methods to eliminate poor quality data. These methods can also be used to eliminate fraudulent data (e.g. data that was generated by shaking a phone rather than exercising or having someone else other than the designated user train using their profile).

# 10. Business Plan

Performance Lab already has an existing business with a strong team and mature Arda AI software platform that is currently used by thousands of end users and companies such as Oakley, Intel, Lifebeam and New Balance. The Company will benefit from this track record when it acquires the Arda Platform. The Arda Platform has recently been extended to power other DApps in addition to its own ARDAT Tokens and services. With the Company preparing to launch tokens, the acceleration of this model can occur very quickly.

The Company will use its ARDAT Token allocation primarily in four ways:

1. Sourcing and incentivizing new participants (both End Users and Data Consumers) who will enhance the Arda platform and ecosystem for all participants
2. Operational costs, infrastructure and developers
3. Marketing and PR for the Arda platform
4. Supporting and growing the Blockchain and Performance Lab developer community

## 10.1 The Company

Performance Lab recognizes that there is a better way to operate systems in the world. Performance Lab has established and capitalized the Company, a private company incorporated in Singapore. The Company is the entity that will hold Arda Platform assets, digital wallet and relevant contractual rights, maintain the Arda Platform ecosystem and issue the ARDAT Tokens.

The intention is for the Company to facilitate the entire Arda Platform ecosystem's transition to a fully decentralized and autonomous network.

The Company's mandate is to grow an open ecosystem of digital services that consumers can easily explore and find value in while giving developers an open and sustainable platform to develop, deliver, and enhance those services and attract users.

# 11. Team

Performance Lab has built a world class team of experienced business entrepreneurs, operations experts, design specialists and a world class technology team to deliver the outcomes proposed in this White Paper. These individuals will support the Company's operations under an operational services agreement with Performance Lab. It is not expected that the Company will have any of its own employees.

## 11.1 Executive Team

### Waynne Dartnall
**Chief Executive Officer**

• C-level executive who has set strategy, enabled disruptive revenue growth and maintained rigorous operational focus as a Founder and CEO at global companies operating in the USA, UK and New Zealand.

• In these roles he has built scalable business platforms that have grown from $0–$100M+ revenue in both domestic and international markets.

• Participates in multi-sports and has completed full distance ironman events.


### Jon Ackland
**Co-Founder and Chief Science Officer**

• Internationally regarded exercise physiologist and sports performance consultant with over 20 years' experience in high performance analysis prescription and motivation.

• Coached multiple world, and Olympian champions in both individual and team sports.

• Author of nine books on high performance and endurance training, two of which are used as University texts.

• Prodigious serial inventor and holder of patents who has developed a wide range of successful training systems and products.

• Ex ironman athlete and rower. Runner, cyclist and sailing enthusiast.

## Kerri McMaster
### Co-Founder

• Over 25 years experience in Strategic Partnerships and Product-Market Validation Alignment.

• Developed and commercialized a number of health and wellness programs that have been hailed within the health management industry as the benchmark for the sector.

• Forged partnerships with leading brands such as New Balance, Intel, Oakley, Lifebeam, Amazon, Microsoft and Google.

• Holder of two consecutive Karate world champion titles.

## Peter Hay
### Chief Financial Officer

• A recognized business leader with extensive knowledge of business practices, financial reporting, stakeholder management, change management and team leadership.

• Proven ability to achieve accelerated sustained profit growth. Instrumental in establishing new multi-million dollar business units in New Zealand and Australia and heavily involved in the successful divestment of business units and the acquisition of complimentary operations.

• Past roles include over four years at software company, Flintfox, as Operations Director and 15 years at technology and marketing agency Affinity ID as Finance Director and Group Managing Director.

• Fisherman and water sports enthusiast.

## Stuart Braxton
### Interim Chief Marketing Officer

• International marketing leader with deep expertise in go-to-market strategy, campaign planning and talent development. Stuart specializes in building customer loyalty through marketing that adds to culture.

• For almost 20 years, Stuart held marketing management roles at Apple Inc in the UK, US and Australia; most recently Head of Marketing Communications for Apple in the Australia-New Zealand (ANZ) region.

• As a New Zealand Trade and Enterprise (NZTE) Beachheads Advisor, Stuart helps New Zealand businesses grow bigger, better and faster internationally.

• Avid cyclist and swimmer.

## Sebastian Mrozek
### Head of Development

• Expert software engineer and development leader with over 17 years experience, including 5 ½ years at Orion Health.

• Passionate promoter of agile methodology with proven success leading high performing teams to deliver a variety of successful software projects.

• Master of Science in computer programming. Fluent in Java and web applications (JavaScript, jQuery, Angular, Webpack, Android and Swift) as well as various database technologies (PostgresSQL, CouchDB, MongoDB, DynamoDB).

• Runner, surfer and stand up paddle boarder.

## Mark Gorelick
### Vice President of Digital Health

• Senior leader offering extensive expertise as a health professional, biomedical specialist, product developer, researcher and educator. A digital health thought leader with advanced industry knowledge in the clinical, educational and private health sectors.

• 5 years at PAI Health (formerly Mio Global), most recently as Chief Science Officer where he drove cutting edge sensing technology while managing R & D for the fitness and health markets.

• Holds a PhD in Biomedical Science from the University of Wollongong. Previously to moving into the private sector, Mark was a tenured Associate Professor of Kinesiology at San Francisco State University.

• Runner, tennis player and CrossFit enthusiast.

## 11.2 Advisory Team

### Aaron McDonald

- Chief Technical Officer, Blockhaus.
- 20 year tech industry veteran having experience leading teams across all aspects of technology.
- Held leadership positions in large technology companies managing portfolios over $1b in value across engineering and architecture, product development and management, marketing and sales.
- Aaron is now the managing director and Co-Founder of Centrality, a Blockchain platform and ecosystem.

### Daniel Gillespie

- Chief Operating Officer, Blockhaus.
- Over 12 years of international banking and private equity experience: fund raising, deal origination, investment and portfolio management.
- Held roles in New Zealand with ASB, in London with Deutsche Bank and Fortis BNP Paribas and in the United Arab Emirates with Limitless and Istithmar World.
- Investment Manager for a portfolio of private equity assets throughout the USA, South East Asia, Africa and Europe.

### Jerome Faury

- 15 years senior P&L and business management experience.
- Held GM to regional and functional head roles including Board and Non-Executive or advisory positions.
- Significant hyper-growth and exec leadership experience across digital payments, healthcare and enterprise software with industry leading companies like Oracle, Orion Health and Payment Express.

### Ruitao Su

- Head of Mobile.
- More than 20 years in development of mobile applications with local and global companies.
- Co-founder of several successful start-ups in the U.S.
- His last 3 applications were U.S Apple featured applications and Ruitao has been invited by Apple to present at developer conferences such as WWDC.

### Michael Whitehead

- Co-Founder of data automation software company WhereScape Software, analytics company Now Consulting and commercialization consultancy Tap In Ventures.
- Prime Minister's Business Scholarship winner, EY Entrepreneur of the Year Category winner, Chartered Member of the Institute of Directors in New Zealand.
- Areas of expertise include data and analytics, international business and business strategy.

## 11.3 The Development Team

Performance Lab has a team of software engineers, testers, dev-ops specialists and designers who have been working on the Arda platform for more than five years. They have built robust solutions to meet the needs of thousands of end users and companies such as Oakley, Intel and Lifebeam.

In addition, Performance Lab has a partnership with Centrality.ai, who has taken a strategic stake in Performance Lab. Centrality has one of the world's largest blockchain teams, with over of 40 blockchain engineers that have the skills and experience to deliver world class tools for start-up founders.

This world-class team provides the horsepower to achieve the vision set out in this White Paper.

ARDA™

*Smart Training Community*

**ARDA AI COACHING PLATFORM WHITE PAPER (ver2.0)**

Performance Lab Technologies Ltd
19 Byron Avenue, Takapuna, Auckland 0622, New Zealand
email: info@joinarda.com