# ARROUND

# Universal Decentralized Augmented Reality Platform

# ABSTRACT

**ARROUND is a decentralized augmented reality (AR) platform with a mission to give anyone the ability to experience the world in AR, and provide a place for developers to realize the potential of their applications.**

**ARROUND** uses blockchain and augmented reality to build an ecosystem consisting of four integrated elements: a disruptive universal advertising network, an augmented reality marketplace, a social platform, and the next generation AR map that will create a backbone for AR projects around the world.

The platform will release its own token, the **ARR**, to support all transactions within the platform, with blockchain warranting the intellectual property and privacy rights as well as the commercial interests of all the involved parties.

# AUGMENTED REALITY –
# THE OPPORTUNITY

Augmented reality (AR) is the integration of digital information with the user's environment in real time. Unlike virtual reality (VR), which creates a totally artificial environment, augmented reality uses the existing environment and overlays new information on top of it.

While the technology to create an AR experience has been around for a long time, with the term first being coined by Boeing researcher Thomas Caudellin in 1990, there have been many false starts on the path to commercializing the technology. It is not until now, with the release of ARKit for iOS and ARCore for Android, that the technology to reproduce an AR experience for consumers, initially via smartphones, has been made possible.

> **"So far, we can see only the tip of the iceberg. In the future, augmented reality will forever change the way we use technology"**
> — *Tim Cook, CEO of Apple*

Unlike AR, virtual reality (VR) completely replaces the vision of the real world. In order to enter virtual reality, the user needs to wear a helmet and stay in a special room, while augmented reality is created in the real world and complements it. In this sense, augmented reality is a mobile technology that can be freely used to enhance existing real world activities, wherever they are.

### Augmented Reality Versus Virtual Reality Market Size
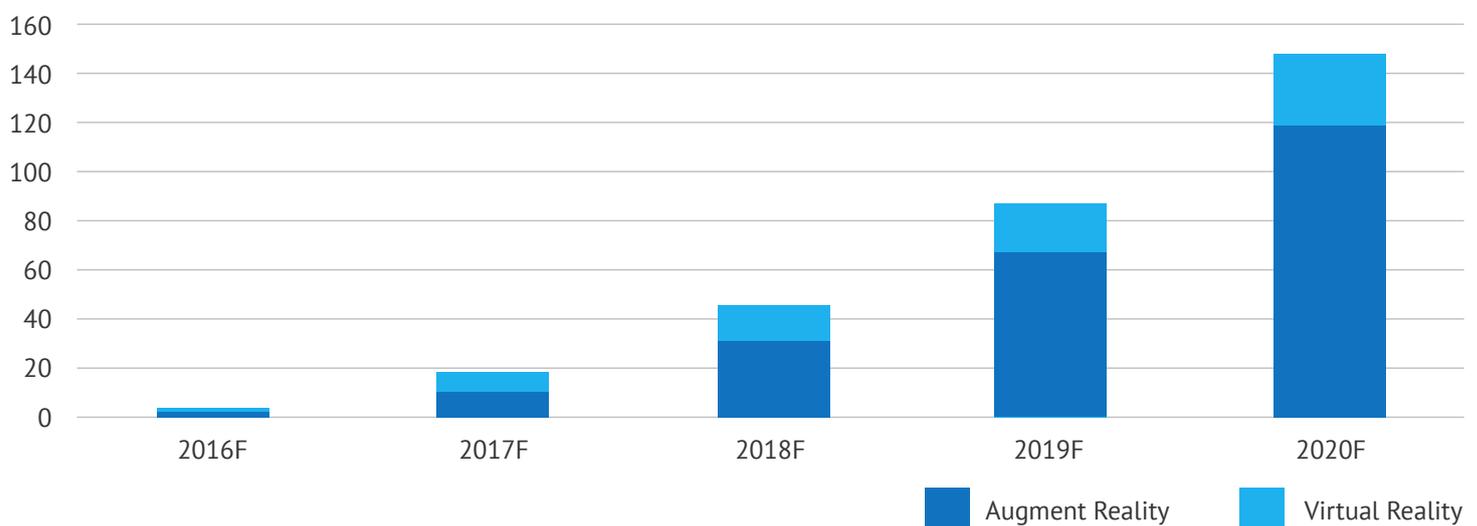


Forecasts put the burgeoning AR market at $120 billion by 2020, growing to $198 billion by 2025, showing a Combined Annual growth Rate of 65.1%. And while hardware sales are expected to make up a large proportion of this revenue, AR data, AR commerce and AR advertising represent significant chunks of this overall spend. The unprecedented growth and burgeoning popularity of augmented reality make it one of the most exciting technologies in the world.

According to the analysts at Juniper Research and Goldman Sachs, the augmented reality market will grow by 20-100 times in the next 5 years.

The market capitalization of some newly established companies in the field of AR/VR are already in the hundreds of millions of dollars. Take Magic Leap, for example, the current market leader with a capitalization of $6 billion.

Whilst Virtual Reality has garnered most of the headlines in recent years, the mobile nature of AR means that it stands head and shoulders above VR in terms of forecasted mainstream adoption.

**Augmented/Virtual reality Revenue Share 2020 Forecast**
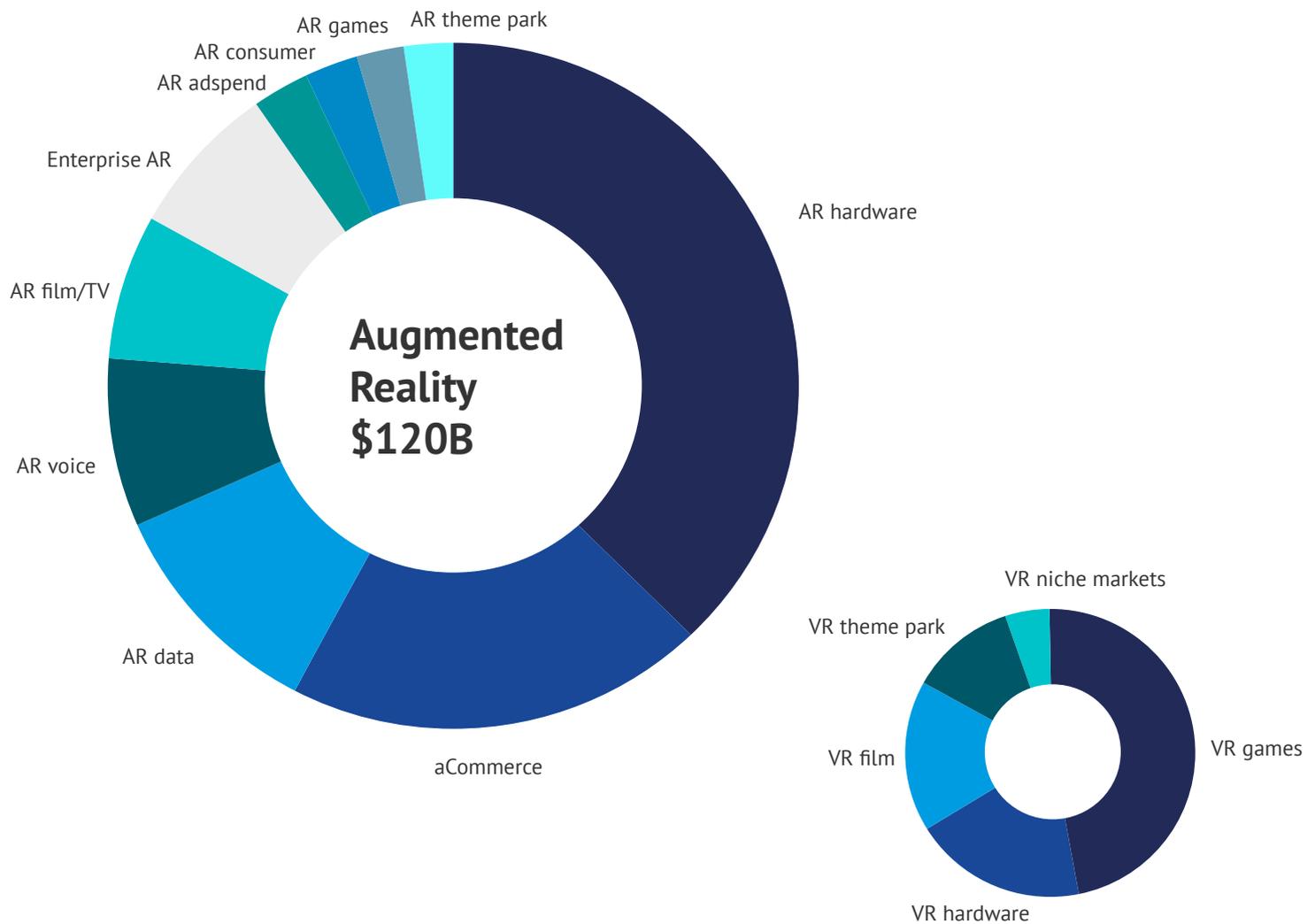


ARROUND fully recognizes the opportunities that this market offers and intends to utilize the powerful combination of blockchain and augmented reality to:

- Offer smartphone users (and later on users of smart glasses) a way to quickly create, share and enjoy augmented reality experiences via a privacy focused social network.

- Provide offline retailers, brands and organizations with a powerful new way to engage consumers utilizing a variety of immersive and engaging advertising solutions based on augmented reality technology.

- Create a marketplace for AR developers globally and other entities to engage with the public and monetize their applications, and provide them with a test environment via a robust SDK and API in order to enable this.

- Develop a crowd-sourced 3D spatial map of the world to provide an information backbone to power the next generation of AR applications and services that require pinpoint accuracy in a real world environment.

# Generation Z — The New Breed of AR Users

Augmented reality will impact the majority of the world's population and become an integral part of our lives. Scientists at the University of Liverpool claim the whole generation born after 1995 – Generation Z – will become the first augmented reality generation, for whom AR technology will be as commonplace as smartphones and the Internet are for us today.

> **"Our fascination with augmented reality is just beginning. What we see now is just a tiny part of what it will bring and what it can do"**
>
> *— Dany Lopez, COO of Blippar*

## Introducing Generation Z

**Talking a different language**

| Formative experiences | **Maturists** (pre-1945) | **Baby boomers** (1945-1960) | **Generation X** (1961-1980) | **Generation Y** (1981-1995) | **Generation Z** (Born after 1995) |
|---|---|---|---|---|---|
| | Wartime rationing Rock'n'roll Nuclear families Defined gender roles - particularly for women | Cold War 'Swinging Sixties' Moon landings Youth culture Woodstock Family-orientated | Fall of Berlin Wall Reagan/Gorbachev/ Thatcherism Live Aid Early mobile technology Divorce rate rises | 9/11 terrorist attacks Social media Invasion of Iraq Reality TV Google Earth | Economic downturn Global warming Mobile devices Cloud computing Wiki-leaks |
| Percetage in UK workforce | 3% | 33% | 35% | 29% | Employed in either part-time jobs or apprenticeships |
| Attitude toward career | Jobs for life | Organisational - careers are defined by employees | "Portfolio" careers - loyal to profession, not to employer | Digital entrepreneurs - work "with" organisations | Multitaskers - will move seamlessly between organisations and "pop-up" businesses |
| Signature product | Automobile | Television | Personal computer | Tablet/smartphone | Google glass, 3-D printing |
| Communication media | Formal letter | Telephone | E-mail and text message | Text or social media | Hand-held communication devices |
| Preference when making financial decisions | Face-to-face meetings | Face-to-face ideally but increasingly will go online | Online - would prefer face-to-face if time permitting | Face-to-face | Solutions will be digitally crowd-sourced |

This new generation of technology adopters will be the first to grow up with augmented reality as their standard means of interfacing with the real world.

# AUGMENTED REALITY & THE BLOCKCHAIN

**ARROUND is a unique decentralized economic and technological infrastructure supporting the augmented reality ecosystem.** Throughout each aspect of the platform, blockchain technology is used in order to facilitate the development and sales of goods, services, information and advertising using the principles of a decentralized economy. ARROUND will have the ability to address multiple markets through the application of a single technological platform.

Each element of the ARROUND economy relies on blockchain to ensure frictionless interaction between each party, allowing the system as a whole to maximize its potential to become a transparent and trusted resource within the global AR ecosystem.

Blockchain is a digital ledger in which transactions are stored and validated by the participants on the network, resulting in a unique transparent and verifiable record without the need for a central authority. Through the use of EC20 smart contracts, ARROUND can solve a number of specific issues associated with social networks, advertising networks, marketplaces and crowd-sourced data.

## Social Responsibility

By enshrining our users' rights in blockchain, we ensure that their privacy and personal data remains firmly in their hands. While display and contextual advertising will be served to all participants on the platform, users will be protected from 3rd party trackers and targeted advertising will be permission-based, secured by a smart contract, not only protecting the individual user but also allowing them to be rewarded by the advertiser in tokens in exchange for any data they choose to provide.

## Marketing & Advertising

Advertisers, retailers and organizations will also benefit from the transparency that blockchain provides. Objects and AR experiences can be uploaded directly to the AR Social universe or to the AR Store, where each view, interaction or purchase will be tracked by blockchain, providing a guarantee of efficiency and transparency. All advertising and promotional content served on the platform will be tracked and stored via blockchain, with no middleman there is less room for error and fewer overheads in the provisioning process.

## Generating a 3D Map of the World

Blockchain is an essential and indivisible part of the overall system, allowing us to reward users, and record their contribution to the creation of a 3D spatial map that will power the coming generation of AR services in addition to countless other services that require accurate spatial positioning to operate.

Through the use of blockchain ARROUND is able to implement a number of key features that would be unreasonably complex and costly in a traditional environment. The implementation of our own token, the ARR is a fundamental feature that massively accelerates our ability to attract users, external partners and build a global platform.

## Developer Ecosystem

AR developers, both hardware and software, will benefit from the transparency that blockchain provides and the flexibility that the ARR token offers. All intellectual property will be written into the blockchain, and all purchases and short-term leases of intellectual property on the platform will be guaranteed via smart contracts, ensuring transparency in pricing, sales volumes and effectiveness.

# EXISTING PROBLEMS & PROPOSED SOLUTIONS

# The public is hungry to create and share AR experiences, but has few opportunities to find quality content

The runaway success of projects such as Pokémon Go underscores the public's desire to engage with quality AR content as well as the willingness of business to adopt AR as a new kind of marketing platform. However, this demand remains pent up, as the public has little opportunity to access quality AR-focused content, let alone create their own AR experiences for their friends and peers.

To address this, we will launch AR Social, an augmented reality focused social network that puts users in control of their AR experience. Users will have the ability to access AR applications, view, share and even create their own AR content using their smartphone. The platform uses GPS and spatial recognition technologies to provide a first class augmented reality experience, providing a unique way to view the world around us.

> ## "A BRAND NEW SOCIAL EXPERIENCE IN AUGMENTED REALITY."

Phase I of the platform (an MVP that will be available on both Android and iOS devices) will provide users with the ability to view, interact with and share objects created by ARROUND and our commercial partners. Later, we will develop the platform to provide additional functionality that will give users the opportunity to play games, create and share content (videos, photos and messages) all anchored to geo-spatial coordinates, allowing our users to fill the world with their own AR content and content provided by commercial partners and 3rd party developers. The flexible structure of the network means that it can be used to keep in touch with existing friends as well as build a new circle of like-minded people. Users can create reviews, advertise their events, check in to places and send messages, share their thoughts and feelings, sell items, go on virtual tours…in fact the applications are only limited by the imagination of the users.

**ARROUND will provide the infrastructure and offer motivation** in the form of bounty programs to rapidly grow the user base of the network, as well as implement cutting edge viral marketing techniques to develop the reach of our network, in order to make it attractive, functional and the first port of call for the public to join the augmented reality revolution.

Privacy on the network is guaranteed by a social contract written to blockchain, which secures the users control of their identity and warrants that no 3rd party trackers are employed without their consent. Any socio-demographic targeting is specifically undertaken with the consent of the user, and even so, they retain the right to their anonymity on the platform. We believe that the use of blockchain to protect the data of each and every user of our platform is an undeniable right, and a departure from the free and easy approach to data security displayed by the current generation of social networks.

# Offline retailers have been left behind in the data boom

Since the advent of the Internet, digital and mobile marketing have been the driving force of e-commerce, and there is now an abundance of technology available for even the smallest online retailer to take advantage of. However, in the race to provide ever more effective online advertising and marketing methods, offline retailers have been largely ignored, forced either into a hybrid model of offline/online sales or to offer untargeted discounts and offers via 3rd party sites online in the hope that the customer will remember to visit their shops the next time they are on the high street or in a shopping mall.

> **ARROUND'S DISRUPTIVE MOBILE MARKETING SOLUTION IS THE WORLD'S FIRST DECENTRALIZED ADVERTISING NETWORK BASED IN AUGMENTED REALITY.**

ARROUND is fully adopting the emerging technology of augmented reality to provide a decentralized advertising solution for offline retailers that allows them to engage potential customers in the process of shopping, through geo- and socio-targeted push notifications and in-store augmented reality shopping assistance which can even generate discounts for clients while they are selecting products to buy.

Through the activation of the AR Camera within the ARROUND application, consumers will be able to point at specific products or objects in order to activate an AR experience. The AR Camera can be trained to learn visual data in the form of packaging and logos so that when the camera recognizes an item, it can provide additional information about it.

ARROUND can also recognize markers in the form of AR Codes (an analogue of QR codes) to trigger an AR experience for the user. While QR codes provide a uniform experience for all users, AR codes on ARROUND can offer a targeted experience for each individual user, based on their socio-demographic data and the amount of personal information that they have chosen to share on the platform. In this way, ARROUND gives offline retailers access to the same powerful tools that online retailers have enjoyed for years. ARROUND will be an aggregator of AR experiences, so that retailers no longer have to invest in their own application in order to provide an enhanced experience for their customers and supporters.

In addition to tapping this vast reserve of unrealized advertising, ARROUND also provides a unique platform for its users to communicate with each, create content and experience the world around them through the lens of augmented reality. Both the advertisers and users are supported by 3rd party developers who can leverage the powerful SDK and API to create new features, designs and experiences for everyone on the platform via a marketplace.

# The mobile advertising channel is saturated

Mobile advertising has rapidly become the most popular channel for digital advertising budgets. Digital mobile spending has now surpassed TV ad spending, making it the single largest destination for adverting dollars in the world, and the trend is expected to continue.

But with the high level of competition and huge supply of commercial offerings, users have become weary of traditional advertising leading to the general consensus that new ideas are needed to engage the public effectively.

AR provides a new and authentic way of engaging with people and spreading campaign messages, be they commercial or social. Campaign images, animations and information are now free to leave the confined surroundings of an Internet page, and literally take form in the real world. Through the freely available technology now embedded in the vast majority of the world's smartphones, augmented reality represents the next huge opportunity for marketing and campaign managers.

**Key figures:**

## 71%

The majority of overall internet consumption that will be mobile in 2017.
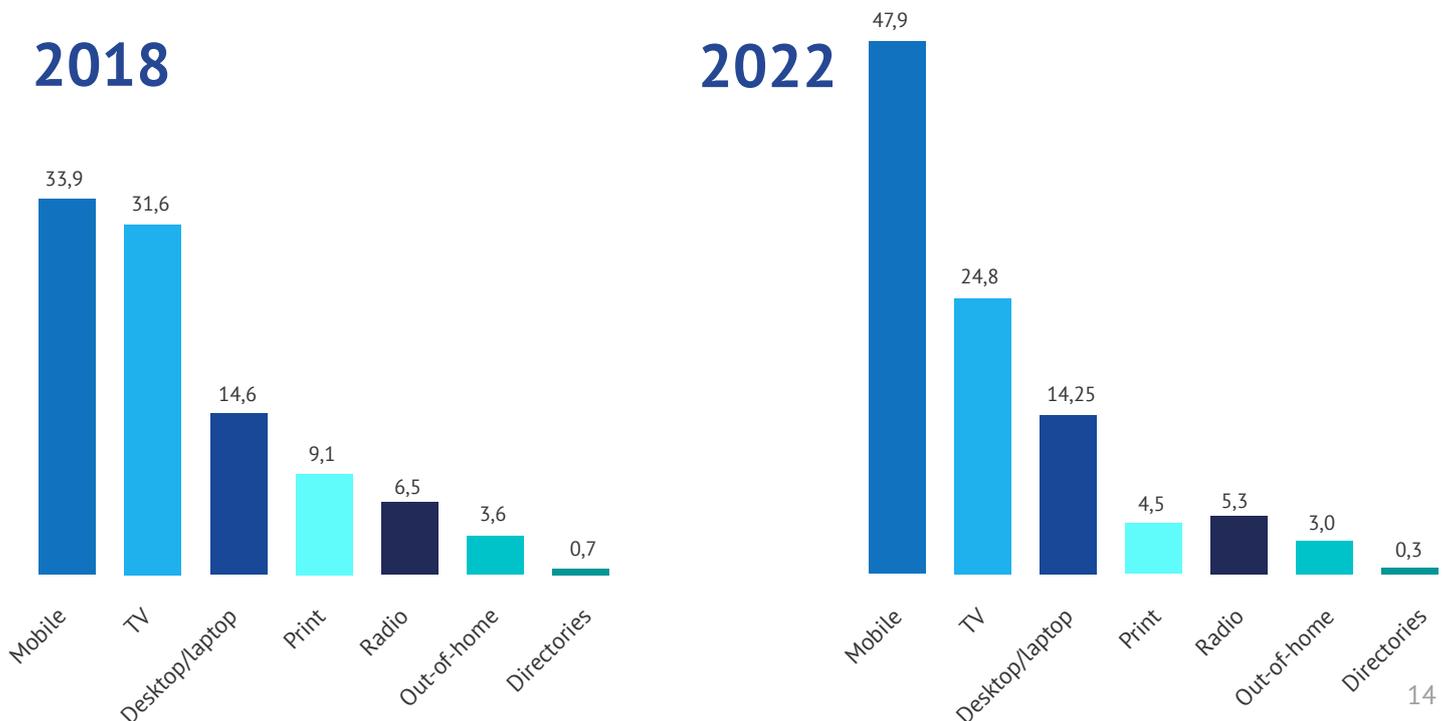
(source: Zenith Media)

## $215 bln

The size of the global mobile advertising market by 2021.

(source: Magna Global)

ARROUND offers a combination of spatial recognition, AR codes and object recognition through the AR Camera, coupled with the plug-and-play functionality that will be offered in the AR Store, which will allow brands to quickly and easily bring packaging and marketing material to life, as well as publish their campaigns (both static and animated) anywhere in the world. Because of ARROUND's social networking features, interesting and engaging messages will quickly travel throughout the network, and across other large social media platforms as users begin to share them.

Integrating our AR AdNet onto the ARROUND platform means that all spending can be tracked, overcoming a major hurdle for large advertisers.

## US Total Media Ad Spending Share, by Media 2018 & 2022 (% of total)

### 2018

| Media | Share |
|---|---|
| Mobile | 33,9 |
| TV | 31,6 |
| Desktop/laptop | 14,6 |
| Print | 9,1 |
| Radio | 6,5 |
| Out-of-home | 3,6 |
| Directories | 0,7 |

### 2022

| Media | Share |
|---|---|
| Mobile | 47,9 |
| TV | 24,8 |
| Desktop/laptop | 14,25 |
| Print | 4,5 |
| Radio | 5,3 |
| Out-of-home | 3,0 |
| Directories | 0,3 |

# Developers are searching for a ready-made market for their AR creations

The advent of PC and platform gaming has created an industry dedicated to producing 3D animated objects, and a legion of talented developers who are ready to produce and adapt existing content for AR. Apart from market fragmentation, one of the leading reasons preventing this industry from accelerating is the lack of a secure marketplace for these developers to securely sell or lease their content.

Through the introduction of AR Store, ARROUND will provide a trusted market place, governed by blockchain, where developers can register and publish their content, and where the platform's users can find an array of interesting and engaging content to enhance their AR experience.

## AR STORE IS THE KEY LINK BETWEEN THE USERS OF AR SOCIAL AND THE CLIENTS OF AR ADNET.

Through the store, users will be able to access unique content to place in the real world, purchase rights for advertising real estate on the ARROUND platform that they can use (and even sub-let to other users or commercial parties), purchase or access additional AR applications such as virtual guides and games.

Developers will be able to use the ARROUND test environment to ensure functionality and compatibility, therefore minimizing costs and maximizing their profitability.

As well as creating experiences for users of the social network, the developers will be in demand from the clients of AR AdNet, helping to bring the great ideas of our clients to life through building best in class AR experiences for them.

# Developing the next generation AR Backbone

Since the introduction of motion tracking technology, AR devices are already able to understand a user's location and orientation when moving in a 3D plane. Area Learning algorithms use visual cues, allowing the device to recognize the location and correct its movement. Depth perception sensors can inform the user about the forms of the surrounding world and build virtual interaction processes based on a cloud of points.

However, the creation of an immersive and captivating augmented reality experience depends upon the quality of data available for its exposition. Most consumer grade augmented reality apps rely on Simultaneous Localization and Mapping (SLAM) Technology, which generates a map of the environment in real time, allowing augmented reality objects to be placed around the environment. However, crucial to providing a uniform experience for other users within the same

environment is the ability to have an accurate map of the location with all the data points already stored in a database. Sometimes called the AR Cloud, this dataset is at the core of the augmented reality experience.

Objects can be placed in augmented reality via a number of methods, typically GPS data is used initially to determine a geographic location, with SLAM providing an additional dater layer to more accurately place the augmented reality object. Development tools such as Google's ARCore and Apple's ARKit provide a level of sophistication that works well for single user AR experiences, but falls short for multi-user experiences.

Using crowd-sourcing, motivated by bounties for mapping popular locations, ARROUND will develop the next generation spatial map through integrating SLAM data into a 3D spatial map that allows for the accurate placement of AR objects and data not only outdoors, but, importantly, indoors too. This will allow for a beacon-free augmented reality experience in any location, be it a restaurant, club, shopping mall, retail outlet, cinema, museum, university lecture hall, hotel or even around the home – in fact anywhere where we have a set of points in order to anchor the augmented reality experience.

# THE ARROUND PLATFORM —

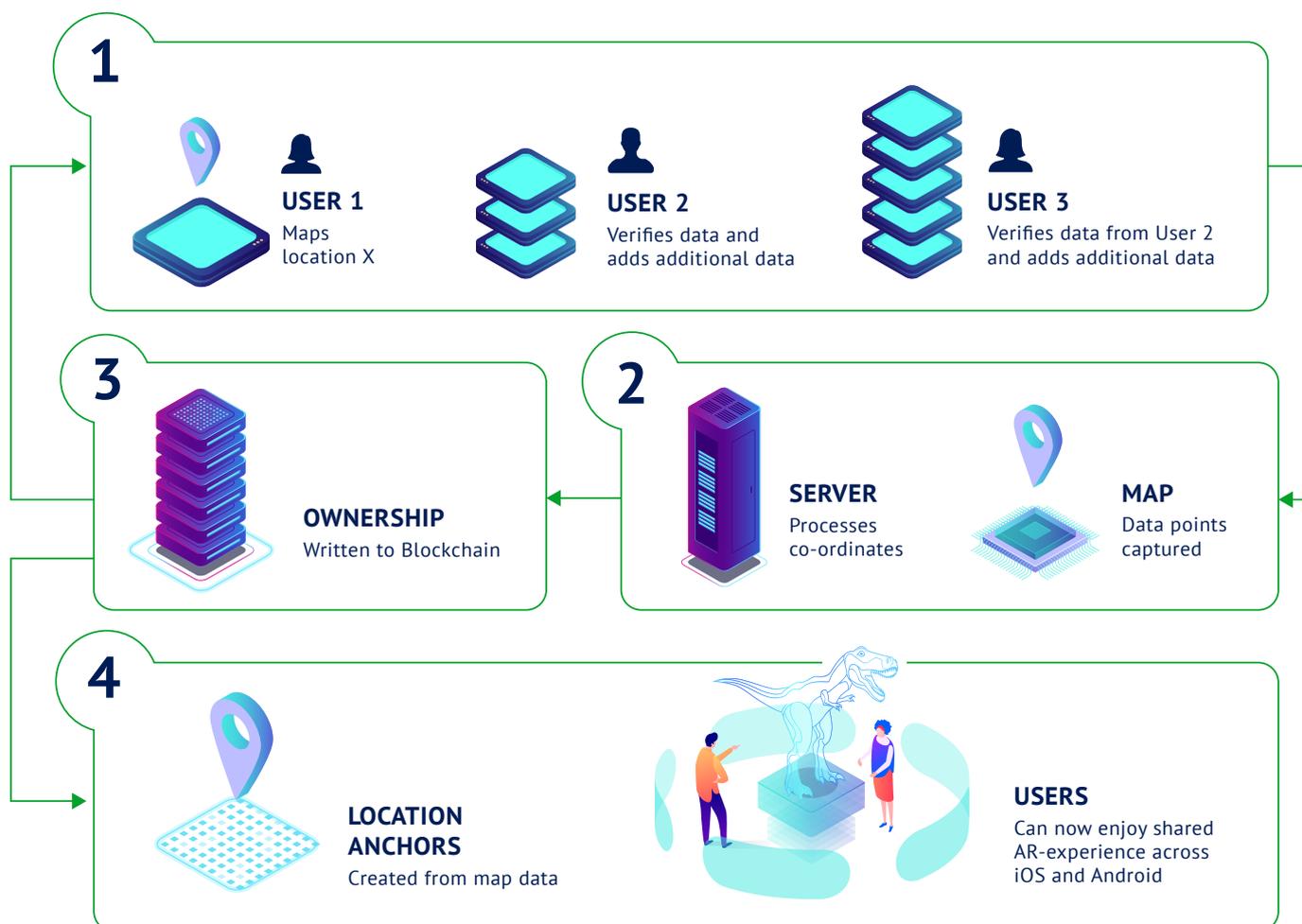# INTEGRATED AUGMENTED REALITY INFRASTRUCTURE BASED ON BLOCKCHAIN

**3D spatial maps represent an important new type of digital asset that have an array of uses within the realm of augmented reality, as well as applications in industries such as robotics, drone delivery and autonomous vehicles.**

The ability to overlay any existing SLAM data, or equivalent, provided by the current set of SDKs provided by Apple and Google, will result in our ability to provide pinpoint accuracy in presenting an augmented reality experience exactly where our users require. This will support our AR Advertising network, through being able to offer in-store navigation to a specific product within a shop. Once the product is located via AR Camera recognition, then a new series of augmented reality functions can be triggered, such as a display of additional information about the product depending upon the nature of the object and the person viewing it. For example, if the product is a health food, advertisers can present information about its origin (where it was produced, the ecology and so on), the production process, the health benefits, and, of course, offer a discount to users in the form of ARR tokens or a straight percentage from the listed price upon checkout.

In addition to enabling the advanced AR experience on ARROUND, the AR Map data that we collect will also be analyzed to determine prime advertising locations, in order to develop optimum marketing and advertising strategies by time and location correlated to user activity. An important feature of this concept is that it integrates into our AR AdNet, therefore allowing ARROUND to integrate our advertising network onto any digital platform able to offer an AR experience, adding even more value to the platform and increasing demand for the ARR token.

## Process for Building and Using the AR Map



**1**

**USER 1**
Maps location X

**USER 2**
Verifies data and adds additional data

**USER 3**
Verifies data from User 2 and adds additional data

**3**

**OWNERSHIP**
Written to Blockchain

**2**

**SERVER**
Processes co-ordinates

**MAP**
Data points captured

**4**

**LOCATION ANCHORS**
Created from map data

**USERS**
Can now enjoy shared AR-experience across iOS and Android

A further feature of AR Map will be its portability. ARROUND will have the option to lease map data to 3rd parties, for example other AR applications that require the same high level of accuracy and access to spatial marketing data in order to monetize their property. In this way, ARROUND can provide not only the map data itself, but also provide a commercial backbone for the booming augmented reality market.

Through the development and commercial exploitation of AR Map, we believe that this data can become a significant source of demand for the ARR token.

## COMPANIES SUCH AS FOURSQUARE DERIVE APPROXIMATELY 40% OF THEIR REVENUE FROM LEASING DATA.

Source: https://www.investopedia.com/articles/markets/021516/inside-look-foursquares-business-model.asp

Users who opt-in to take part in mapping the world will receive a bounty in the form of tokens for participation, and also own a part of the map to which they helped contribute, warranted by blockchain. In return, a portion of the ARR received from usage of the map will be paid to the owner in accordance with their rights, as secured by blockchain. Since ARROUND is primarily concerned with interior maps in highly frequented locations, we will continually sample data in order to keep the AR Map fresh and accurate.

# Overall System Architecture

The ARROUND platform comprises four key elements that are all connected via blockchain, which combine to create a complete AR ecosystem that will allow the project to thrive.



**AR MAPS**

Data Analytics
Slam Spatial Mapping
Anchor Point Navigation

**AR STORE**

Development suite
3rd Party Software
3rd Party Hardware

**ARROUND ARR**
Blockchain Core

**AR ADNET**

AD Portal
Object Recognition
In-store Navigation

**AR SOCIAL**

3D Animated Objects
Viral Sharing
ARR Wallet

# AR Social

This is ARROUND's social network, which will be available for both Android and iOS and available for free in Google Play and Apple's App Store. The core concept of the network is to bring augmented reality into a social setting, allowing every user to create and share AR content with their friends, while making new friends in the process.

Users will be able to create Rounds, AR objects that can contain a variety of media types, and place them in physical locations. Other users can interact with these Rounds using typical social actions, such a liking, sharing and responding to them. AR Social integrates into the rest of the social networking space via open APIs, meaning that content on ARROUND can be shared to YouTube, Facebook, Instagram, WhatsApp as well as by email.

A selection of AR objects will be offered to users on the ARROUND platform by default. Customization and additional AR objects will be provided by developers and by commercial partners. These additional AR experiences will be accessible through the AR Store, which will be a key feature of the AR Social application.

Users will be provided with an instant messenger in order to contact each other, and importantly, all users will have a crypto wallet built into their profile to store their ARR and convert fiat and other crypto currency into ARR. It is envisaged at this stage that ARROUND will adopt an existing solution provided by a wallet provider rather than develop our own solution.

User Rounds will follow the example set by Snap Chat, in that they vanish after a certain time in order to keep the content on the network fresh and relevant. Algorithms built into the system will determine the time that each round stays alive based on the volume of activity in a specific location. The more activity in a specific location, the faster the rounds will vanish. Users will have the ability to promote their Rounds to others in order to gain views, and to extend the time their Rounds are displayed. These basic features will be paid for in ARR tokens.

As the network grows, we will introduce further features such as a dating along with quests, treasure hunts and games. Moderation of the network will be undertaken in the first instance via automated computer processing, with post-moderation undertaken reactively to user requests.

As augmented reality is inherently a geo-location based technology, our focus will be on connecting communities of interest by location, beginning in the world's capitals.

# AR AdNet

AR AdNet is another of the four key elements of the universal augmented reality ecosystem being created by ARROUND. The idea behind the service is to provide an outlet for brands, organizations and offline retail stores to engage in advertising, marketing and information campaigns in augmented reality.

Each time we click a link on our mobile browser, our data is sent half way round the world, virtually at the speed of light so that by the time the page loads, there is a relevant, contextual, targeted advertisement waiting to greet us. Whether we like this or not, it is one of the most efficient and profitable business models in history.

But ironically, the closer we actually are to the physical point of sale in the real world, the less mobile advertising is employed, with retail outlets forced to rely on ideas and methods that they have used for centuries – shop window displays and static billboards. Even more concerning, offline retail still makes up the majority of all our purchases by a considerable margin, with almost 80% of all sales still made via traditional offline shopping channels.

ARROUND fixes this broken and asymmetric model of user engagement, by offering a disruptive advertising solution that unleashes the power of contextual advertising to high street retailers using augmented reality (AR) accessible through smartphones or AR glasses, based on a platform powered by blockchain.

Through the application of augmented reality and blockchain, ARROUND's powerful advertising solution brings offline retailers firmly into the 21st century, enabling them to actively target new clients based on their geo-location, offer unique discounts and offers based on the client's socio-demographic characteristics and offer in store shopping assistance – all in a single app.

ARROUND's augmented reality Ad Net provides a new avenue for offline retailers to define their customer's in-store experience, and allows them to make data-driven decisions during the shopping process.

All commercial parties can access the ARROUND ecosystem via a dedicated Ad Portal. This portal serves an important function in terms of allowing anyone to build and rollout advertising or marketing campaigns from a single location.

The portal will provide the following functionality:

- Registration as an advertiser. Advertiser can be either an individual or a legal entity
- Advertiser's account
- Advertising round creation
- Advertising campaign management
- Reports and analytics
- Tariff plan selection and purchase
- Advertising round creator toolkit
- Client account
- Tools to top-up the user's balance
- Advertising campaign analytics

**ARROUND can offer in-store navigation and targeted discounts for consumers**
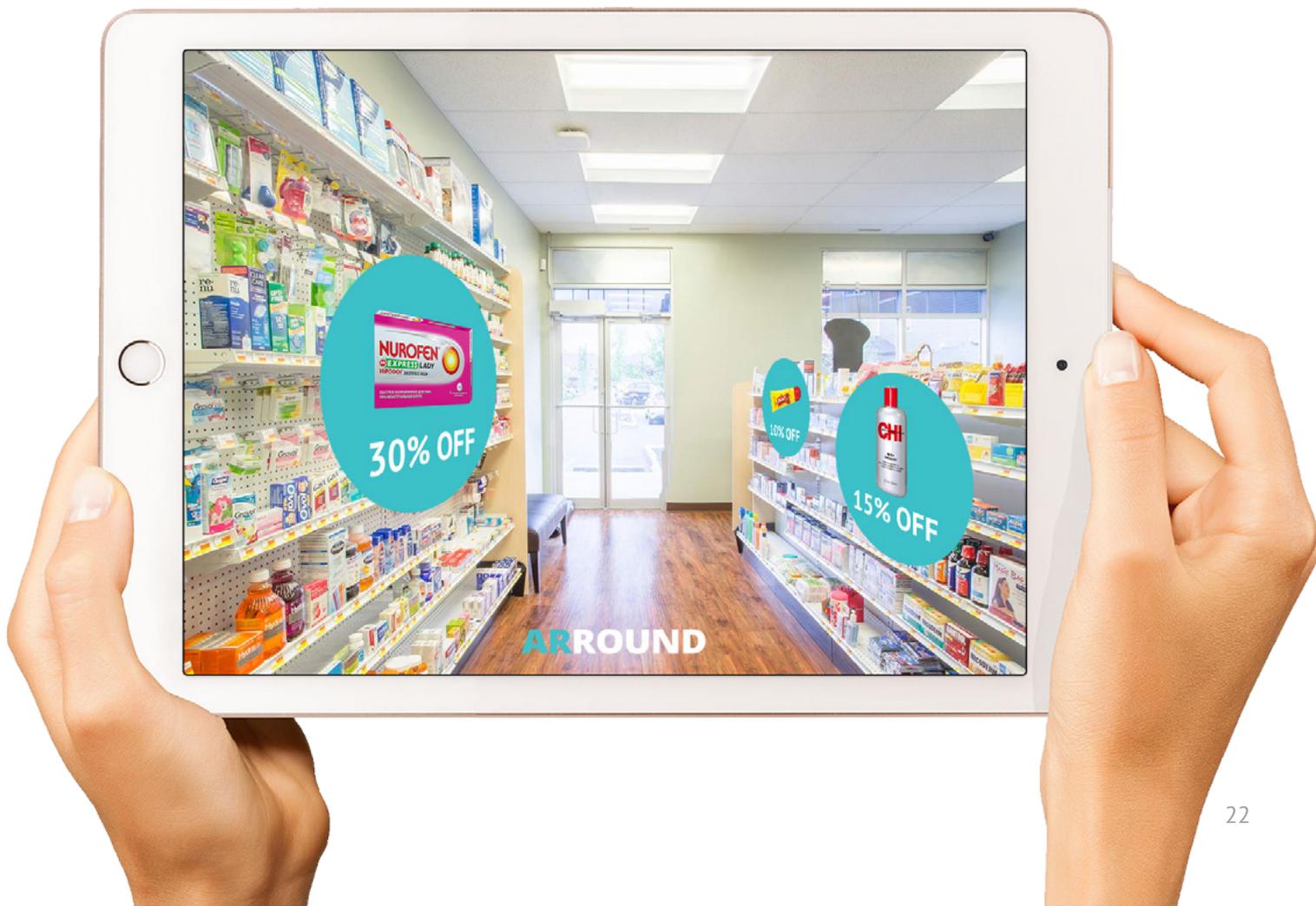
Reports from the web portal will be generated based on user events written to the blockchain, to provide a unique and transparent record of all advertising spend and subsequent ROI.

The portal will be available for clients and agencies to manage individual as well as complex multi-site advertising campaigns.

AR Ad Net also links directly to the AR Map, as complex product navigation campaigns will rely on a detailed map of the environment in which they will take place. The map data will be provided users from the social network, incentivized by crypto-rewards.

Advertising inventory is stored on the blockchain, to avoid double booking, to ensure transparency in results and therefore provide actionable recommendations that can be trusted.

Third party developers are able to offer advertisers and users a host of services, enhanced features and designs on the ARROUND platform. All purchases or leases of intellectual property created by developers are governed by smart contracts, thus extending the level of trust that all parties have in the platform.

### PRINCIPLES OF INTERACTION

- Pointing mobile device camera at a round for 1 second is equal to 1 view
- When the user opens a round it will be equal to one click
- Following a link contained in a round is equal to an Action (CPA)

The ARROUND platform will also hold promotions to encourage users to make purchases.

# AR Map

The AR Map links directly to the social network and to the advertising solution. Users of AR Social can take part in a project to map their location simply by scanning the area around them with their smartphone camera. The requirement is only that they have a front facing camera in order to capture a set of data points that will be generated. The technology is similar in nature to 3D scanning, a field which already has a well-developed and widespread set of algorithms that can provide the accuracy required to delivery an immersive AR experience. The resulting data set is a 3D point cloud, tagged to a physical location determined by the GPS, and by additional information such as check-in status and locations known to us.
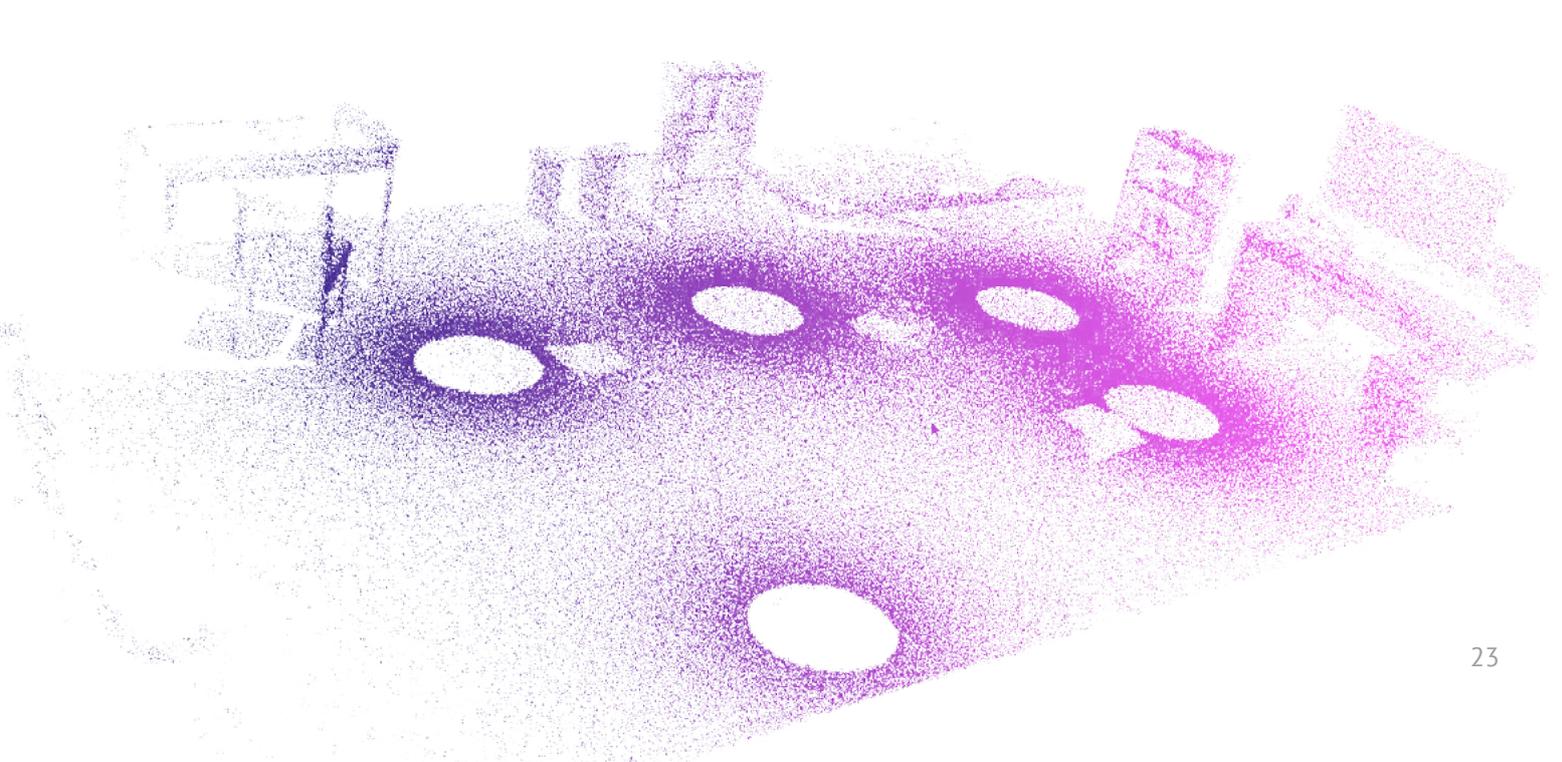
# Advertising Use cases

## SOLUTION #1: PHARMACIES

### Problem description

Typically retail stores try to arrange their window displays in order to attract customers and sell more products. This is a method that dates back to the 18th Century. However, there is an inherent disconnect in the fact that the user may be unable to easily locate the product once they are actually in the store and additionally the product being promoted may be of no interest to the individual consumer passing by the shop window. A further problem is that the user has to actually be physically looking into the shop window to view the promotion. Subsequently, the conversion rate of such merchandizing is usually quite low.

### Proposed solution

ARROUND will allow retail business owners to integrate interactive advertising by means of AR codes and via actual product recognition an in-store location.

### AR codes

An AR code is equivalent to a QR code. The retailer places a special branded AR code in their window display. The appearance of the AR code is a clue for the user to read it via the AR Camera on their ARROUND app. When the AR Camera recognizes the AR Code.

The application will display unique content for each user depending on their socio-demographic data or search queries.

For example, a young mother may see an ad for children's vitamins or diapers (depending on the age of her kids), while a middle-aged man who recently searched online for how to get rid of a cold will see information about medicine to treat his cold products.

The concept of permission-based targeting means the consumer will often be presented with more relevant options, helping to reduce the amount of time they spend shopping and therefore increase their available leisure time.

Retailers will be able to use a virtual AR promoter and interact with customers inside the store by offering them products that match their user profile, as well as communicate with customers through AR to help them make a choice or ask them to leave feedback on social media.

Through further integration of ARROUND, AR technologies such as the AR Map and object recognition features, with the combination of socio-demographic targeting and geo-location, the platform can even provide push notifications to users who are near a pharmacy, notifying them about special promotions that they may be interested in.

If the user is interested in the promotion, they will be able to receive step-by-step navigation to the store and even navigation to the aisle and shelf where their desired product is located. The AR Camera within the ARROUND application can recognize the item on promotion and provide additional information in order to enhance the sales process, this includes the option of offering personalized discounts on related products in order to increase the overall transaction amount.

# SOLUTION # 2: NAVIGATION INSIDE SHOPPING MALLS

## Problem description

Most shopping malls set high prices for navigation, advertising and promotional work. To solve the problem of the lack of advertising space while maintaining the design of a shopping mall, navigation and advertising can be organized in augmented reality.

## Proposed solution

To activate the ARROUND space of a shopping mall in the form of navigation and information signs or in the form of advertising and promo offers of tenants and brands according to each user profile and utilizing Big Data.

A shopping mall interested in attracting potential customers can place ads in ARROUND over the mall and send push-notifications to everyone in the shopping mall or in the accessibility radius. It is also possible to organize/simulate advertising placement from tenants and major brands (for example, Coca-Cola, P&G, Unilever, L'Oreal). When approaching a shopping mall, the user will see ads and special offers which matches his or her own wants and needs.

Inside a shopping mall, through the use of ARROUND's 3D crowd-sourced map, it's possible to organize navigation layers for product categories and for individual stores. Relevant offers and virtual promoters and assistants offering coupons and bonuses can be placed on the customer's way around a shopping mall.

A shopping mall can also organize quests for shopaholics on the ARROUND platform. For example, "chasing final discounts", or "assign your own discount", or "make 20 posts – get 20% off".

The 3D point data generated by an individual user is processed, where it is compared to data that ARROUND already has about the location. Area learning algorithms are applied to extract surface details, so that anchor points can be generated within the location without the need for special markers, and that these anchor points will be identical for all users, regardless of their position within the location and without having to set up a unique shared session with other users at the location.

In order to motivate users to scan a location, ARROUND will set standard bounties at locations where map data is required. Users can collect these bounties by scanning the location. Bounties will be in the form of ARR tokens that will be paid into the system wallets of the ARROUND users. The size of the bounty will be determined algorithmically depending upon the importance of the location to the ARROUND platform. It is currently proposed to write the ownership of the AR Map into blockchain in order to further incentivize our userbase to build out the map at an accelerated pace. Such ownership would entail the ARROUND userbase owning a maximum of 40% of the overall map, with ARROUND owning the remaining 60%. Revenue from easing and commercial activities associated with the map would therefore be split with all owners of the map. IN this way, users who provide work more to create the map receive a larger share of any future profits from their efforts.

While the standard tools provided by the Android and iOS AR development kits (ARCore and ARKit respectively) provide for real time area localization, the accuracy that they can deliver in terms of offering a shared AR experience can be improve upon. Through the creation of our own AR Map, ARROUND can add an additional layer of accuracy onto our AR experience to provide the accuracy to develop advanced social and commercial solutions that allow multiple users to be able to engage with AR objects that appear in the same fixed spatial position relative to each user.

In the first stage, we propose applying this technology to our AR AdNet system in shopping malls in order to enable step-by-step navigation to individual products located in retail stores that match our users' preferences. We consider this a breakthrough advertising technology of considerable commercial interest to our existing partners, and also in high demand for future partners.

We will also apply this technology to AR Social, so that users in public spaces, be it bars, clubs, schools or universities, can create AR objects (Rounds – messages, videos, images) tied to a fixed physical location that appear the same to all users who view them through ARROUND's AR Camera. This will greatly improve the functionality of the existing AR experience, and will allow users to interact in new and exciting ways, creating the first truly interactive multi-user consumer AR environment.

Through the development of our AR Map service, ARROUND will be well positioned to offer AR AdNet as a monetization source to other mobile applications, with a goal of becoming the leading augmented reality advertising network.

# AR Store

The AR Store will allow users to conduct the sale and lease transactions of content and services offered on the platform. Content authors will set the prices for their products themselves. It can be free distribution, a freemium model or a one-time/regular payment. Also, there are options for auctions, crowdfunding campaigns and donations.

Third party developers access the store via a development suite, allowing them to test not only software but also test how their hardware interfaces onto the network. Through a powerful SDK and API, ARROUND will be open to all parties who wish to develop the network.

All transactions within the AR Store are priced in fiat, but are undertaken in ARR. When a developer creates an account in the AR Store, they will also be provided with a wallet in which to receive their tokens. Tokens can be freely transferable at an exchange after the Main Token Sale.
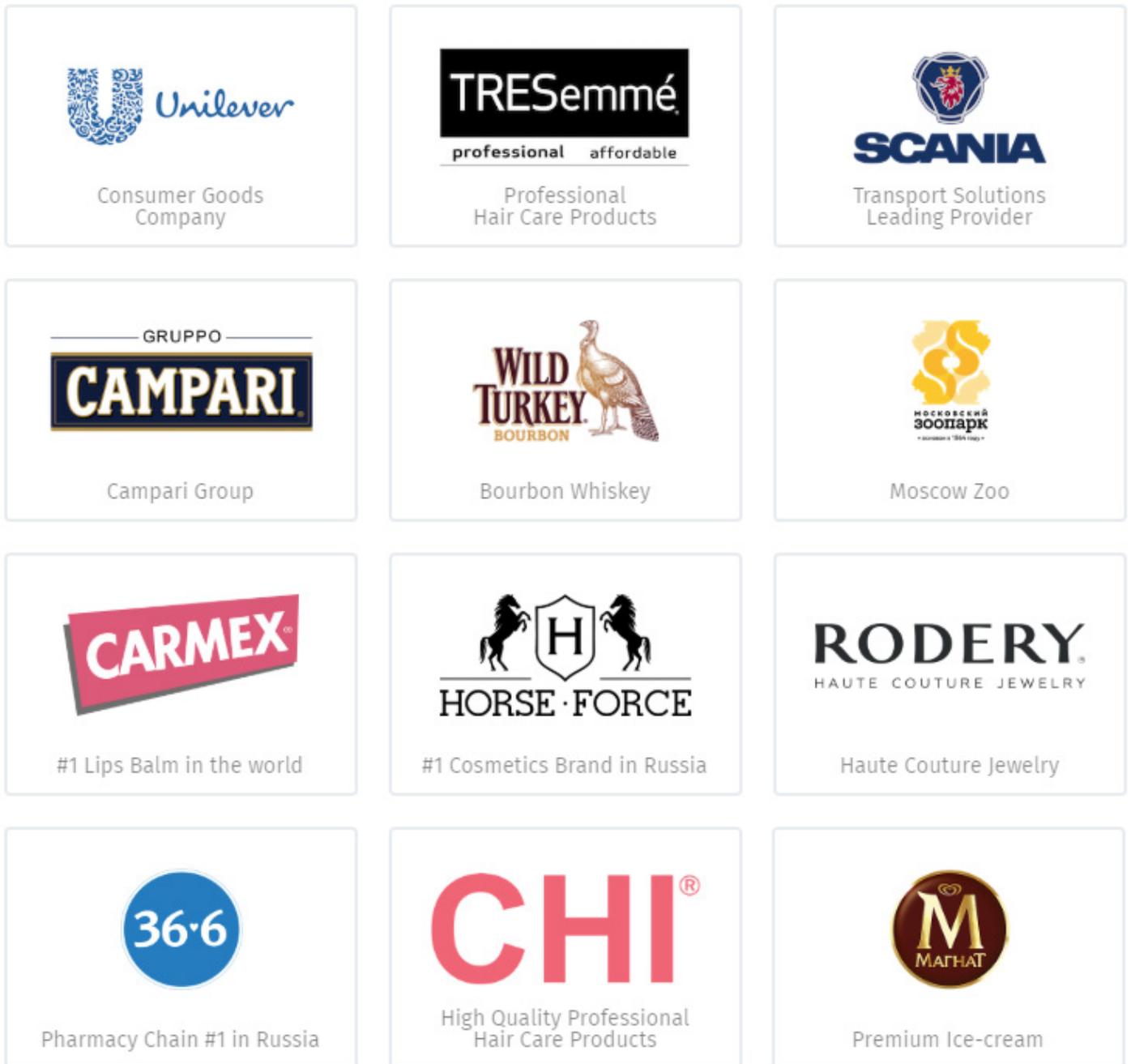
The AR Store provides developers access to:

- SDK – a ready-made software solution that will accelerate the development of AR content.

- API – a set of ready-made parameters provided by the application to be implemented in external software products, which will allow third-party developers to integrate their applications into our system and monetize them.

- The distributed storage where the platform's content will be stored.

- Emulator – a section where developers can test their content for compatibility with various types of devices.

# ESTABLISHED PARTNER BASE

| | | |
|---|---|---|
| **Unilever**<br>Consumer Goods Company | **TRESemmé** professional affordable<br>Professional Hair Care Products | **SCANIA**<br>Transport Solutions Leading Provider |
| GRUPPO **CAMPARI**<br>Campari Group | **WILD TURKEY** BOURBON<br>Bourbon Whiskey | московский зоопарк<br>Moscow Zoo |
| **CARMEX**<br>#1 Lips Balm in the world | **HORSE·FORCE**<br>#1 Cosmetics Brand in Russia | **RODERY**. HAUTE COUTURE JEWELRY<br>Haute Couture Jewelry |
| **36·6**<br>Pharmacy Chain #1 in Russia | **CHI**®<br>High Quality Professional Hair Care Products | **МагнаТ**<br>Premium Ice-cream |

ARROUND's unique augmented reality ecosystem has already attracted the attention of a diverse range of commercial partners, including a number of global brands. In the first case, these partners will allow ARROUND to commercialize its offering, allowing the company to fine tune its strategy while at the same time generating revenue.

Prominent among our initial partner base is the pharmaceutical chain 36.6 (partly owned by Walgreens Boots Alliance), which operates over 2,000 physical locations and offers ARROUND the opportunity to implement its unique in-store location marketing solution.

In addition to an established partner base, ARROUND has been engaged by companies including Coca-Cola, Scania and Unilever to deliver augmented reality campaigns.

# Developing the ARROUND Ecosystem

It is a priority for the project to grow as quickly as feasibly possible, engaging new users and commercial partners in the major capitals around the world in order to drive demand for our products and the ARR token.

Using our unique competitive advantages, we aim to get a substantial share of the consumer and commercial augmented reality market within 2-3 years of the project launch.

Our initial launch will take place in Russia, where our technology base is located. By 2021, we plan to expand the network and attract partners from Europe, Southeast Asia, and the countries of North America, as well as to increase the user base to 30-50 million people.

To achieve this goal, we plan to fill the AR layer with quality content for users. We also have contacts with hardware manufacturers (AR glasses) and creative contractors.

# Token Model

The fundamental principle of ARROUND is to provide anyone, whether a platform user or a commercial entity, with the ability to create, publish and distribute an AR experience, safe in the knowledge that all property and privacy rights as well as commercial interests of all parties are secured by smart contracts, and that friction free payments and the transparency of each exchange is also governed by these same contracts.

To this end, ARROUND uses the ARR token as a unit of exchange within the platform.

ARR tokens are used by the platform's users to purchase or lease digital items or services from connected developers and by commercial parties in order to run advertising and marketing campaigns. Additionally, tokens can be used to motivate users to view advertising and marketing campaigns, plus provide an incentive for users to map their environment, therefore contributing to the creation of an augmented reality backbone network. Usage of the backbone can be provided to third parties through payment in ARR tokens. The ARR is the fundamental unit of exchange within the ARROUND platform, and all commercial activities, although they may be priced in fiat currency, will be conducted in ARR tokens.

There will be a fixed amount of tokens released during the ICO phase of the project, dependent upon the amount of tokens purchased by contributors during the Pre-Sale, Private Sale and Main Token Sale. All unsold tokens will be burned, and no further tokens will be created.

All transactions on the platform, whether concerning users, developers, advertisers or 3rd parties in any format are executed based on smart contracts and securely stored within the blockchain immutably. Each action is securely captured and transacted via a smart contract, stored anonymously in the decentralized blockchain, retrievable via a permissions based architecture that fully supports privacy management.

# ARROUND Business Model

The platform and ecosystem created by ARROUND will be based on the following business model:

- The ARROUND platform will earn money by showing advertisements as well as through the lease of map data.

- All prices inside the system will be set in fiat currencies.

- Payments for ads and purchases inside the system will be made using ARR tokens. Tokens can be bought using both cryptocurrencies and fiat money.

- Benefits for users: discounts, bonuses and rewards for performing tasks from advertisers; token transfers between users.

- Income sources for service providers: payment for premium content by advertisers and users.

- Income of blockchain node holders and the owners of servers with content: a share of transaction fees paid automatically and automatic payments from the Network Development Fund (NDF). All these payments are expected to be made using smart contracts.

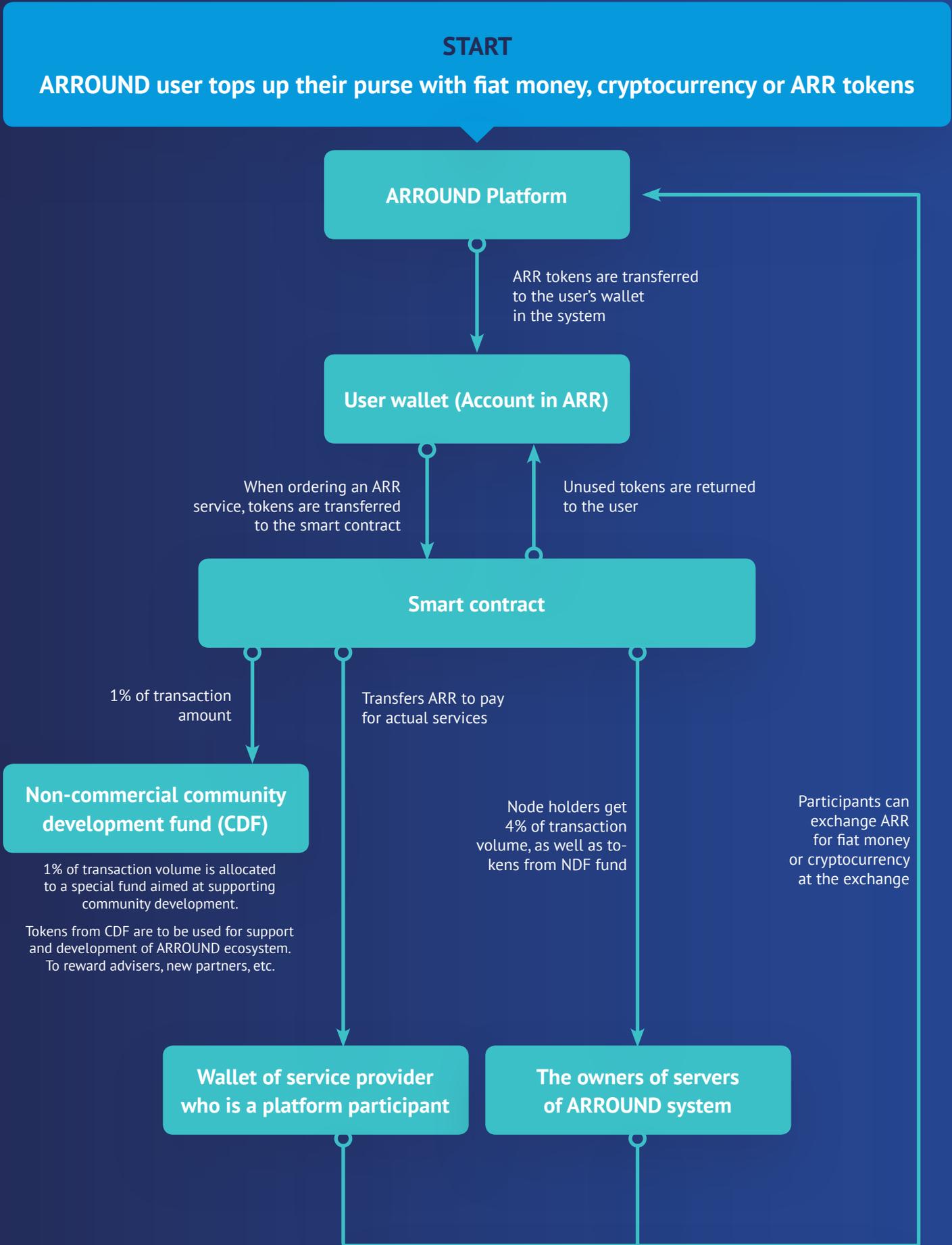# ARR token circulation on the ARROUND platform

Fiat money and cryptocurrency circulation on the ARROUND platform:

- Users and advertisers can buy ARR tokens for fiat money or cryptocurrency on exchanges and use them in the ARROUND platform

- All payments within the system will be made using ARR tokens which can be exchanged automatically

The first users of the ARR platform will be token buyers at the ICO, after which any interested person can buy ARR tokens on an exchange to use the platform.

The ARR token will be released on the basis of ERC20 smart contract on Ethereum blockchain and will also be traded on cryptocurrency exchanges. After a private ARROUND blockchain network is created, ARR tokens will be exchanged for tokens at 1/1 rate through payment channels on the private blockchain where the rights of authors and owners of digital assets will be registered and where an automatic system for making payments for the use of intellectual property will be implemented.

# ARR token circulation on ARROUND platform

**START**

**ARROUND user tops up their purse with fiat money, cryptocurrency or ARR tokens**

**ARROUND Platform**

ARR tokens are transferred to the user's wallet in the system

**User wallet (Account in ARR)**

When ordering an ARR service, tokens are transferred to the smart contract

Unused tokens are returned to the user

**Smart contract**

1% of transaction amount

Transfers ARR to pay for actual services

Node holders get 4% of transaction volume, as well as tokens from NDF fund

Participants can exchange ARR for fiat money or cryptocurrency at the exchange

**Non-commercial community development fund (CDF)**

1% of transaction volume is allocated to a special fund aimed at supporting community development.

Tokens from CDF are to be used for support and development of ARROUND ecosystem. To reward advisers, new partners, etc.

**Wallet of service provider who is a platform participant**

**The owners of servers of ARROUND system**
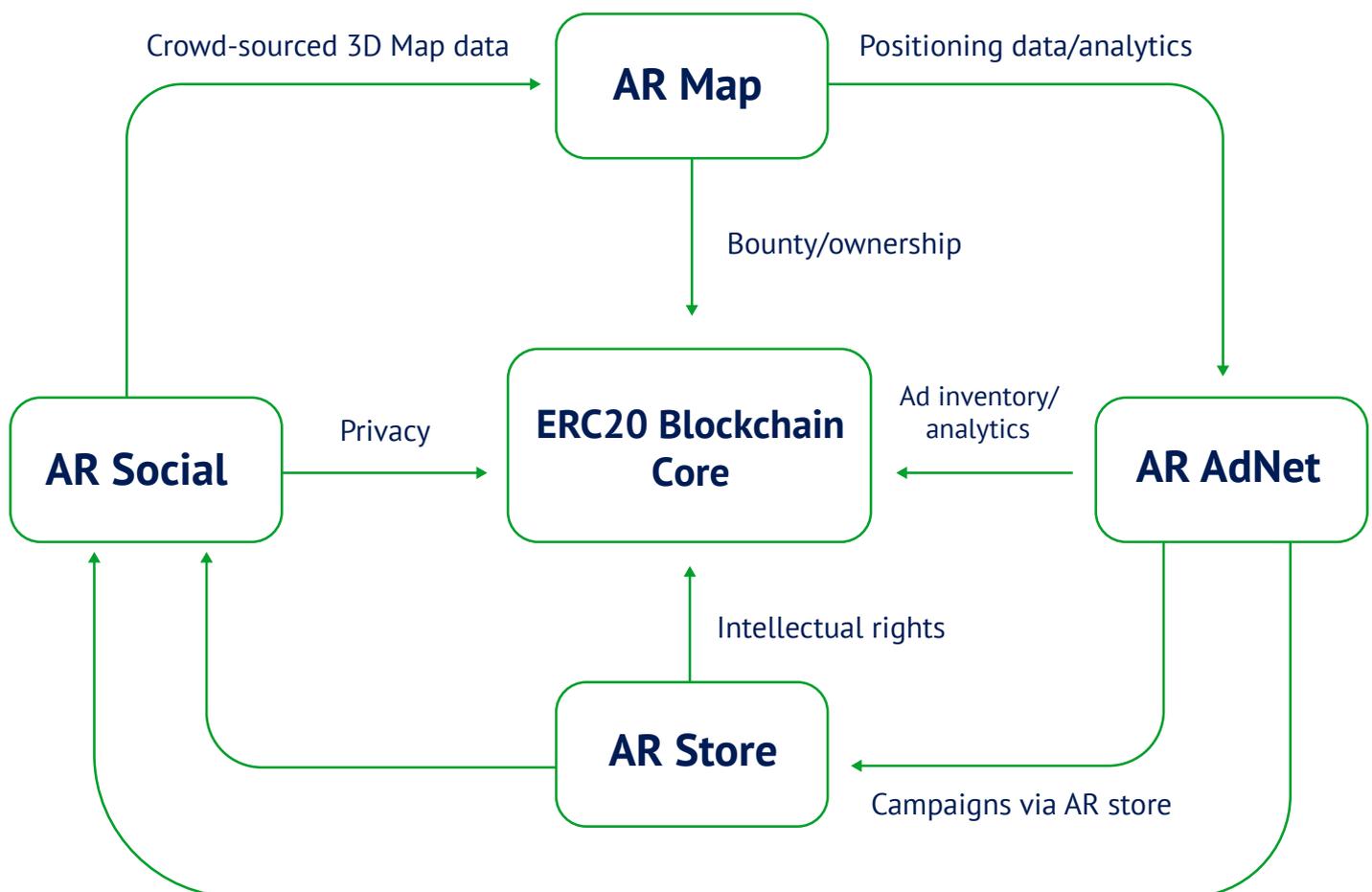
# ARROUND
# BLOCKCHAIN
# FEATURES

We simplify the processes of supporting and developing of our solution by decompressing the architecture of the final solution into two subsystems: the first one – for clearing token balances of system beneficiaries (public) and the second one – to store and process the system's internal information (private). We are also able to apply several platforms to perform our tasks instead of having to use a single platform and trying to make such a platform universal for the entire solution.

The first task can be solved by the implementation of side chain or virtual payment channels (Ethereum), the second – by using a private platform that corresponds to the network's future needs. It can be either peer-to-peer development of a single platform regulated by the market (Ethereum fork) or development controlled by a dedicated group of internal regulators (Corda, Exonum).

**Blockchain and smart contracts:**

- Will be the foundation of the payment system used on the platform and will protect the funds in users' token wallets.

- Will ensure the intellectual rights of authors to content purchased and distributed on the platform.

- The rights to the long-term lease of AR space will give tenants an opportunity to make money on advertising displays on their AR space.

Crowd-sourced 3D Map data — **AR Map** — Positioning data/analytics

Bounty/ownership

**AR Social** — Privacy — **ERC20 Blockchain Core** — Ad inventory/ analytics — **AR AdNet**

Intellectual rights

**AR Store**

Campaigns via AR store

# THE AR LANDSCAPE

The AR landscape is growing rapidly. Although ARROUND is focused on the consumer end of the market, augmented reality has already been heavily adopted within the military, industrial and medical sectors, where heads up displays are already a reality.

Within the US, the growth in AR usage is incredibly strong, which in turn is driving investment and development of the technology.

**US Augmented Reality Users, 2016-2019 (millions and % change)**
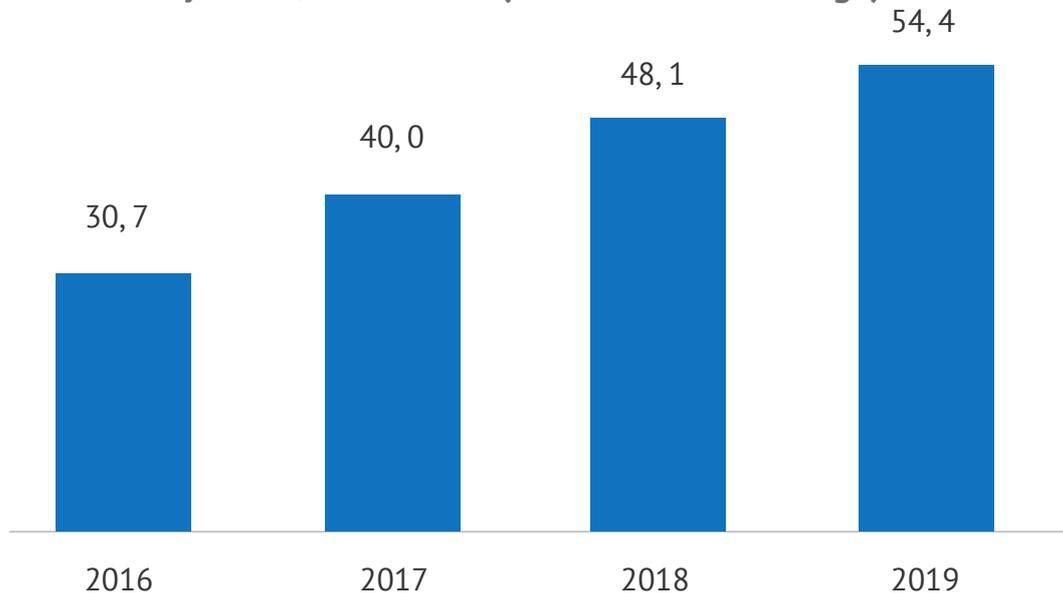


Within the consumer sector, the main players are the hardware and software developers, existing applications that incorporate augmented reality and companies currently raising money to enter the augmented reality space.

The most significant events in the AR industry over the last year are related to the introduction of ARKit and ARCore (by Apple and Google respectively), which promises to finally bring AR technology to the masses.

There have been some notable deals recently, which provide an insight into the value of AR companies.

# COMPETITIVE LANDSCAPE

Our main competitors in the ICO space are projects planning to sell virtual land such as Arcona, Spheroid and Mark.Space. One common denominator across all projects is the desire to commercialize augmented reality through the introduction of advertising space and the subsequent lease and sale of AR inventory. However, rather than creating geographically fixed AR zones, or encourage an AR land grab, ARROUND is first and foremost building a platform for people, where it will be able to use the dynamics of viral marketing in order to attract a worldwide userbase and keep them engaged via the ability to create their own AR experiences, make new friends and keep in touch with their existing network. ARROUND will integrate with the world's most popular social networks in order to drive user acquisition as well as through special promotions, features and urban quests.

ARRROUND is focused on providing an augmented reality application that provides real world functionality, and rewards the user not only in tokens but also through enhancing their lives in measurable ways.

## Comparative analysis of ARROUND project and its main competitors

| Feature | ARROUND | Arcona | Spheroid Universe | TaDa Time |
|---|---|---|---|---|
| Use of blockchain | 10<br>Proprietary blockchain | 10<br>Proprietary blockchain | 5<br>A third-party blockchain is used.Own blockchain may be developed | 0 |
| Advertising partners | 10<br>(pharmacy chains, shopping malls, fast-food) | 0 | 0 | 0 |
| Business | 10<br>Well-thought-out economy and business model | 5<br>8 AR parks created | 0 | 0 |
| Monetization for users | 10<br>Monetization system to reward each stakeholder implemented | 7<br>Monetization of purchased sites promised, but not guaranteed | 0 | 0 |
| A wide range of goods and services | 10<br>The platform satisfies the demand in advertising market by offering users a great variety of services | 2<br>The project only sells sites of AR space. These sites might be in demand in advertising and investment market | 2<br>The object of sales is citizenship in Spheroid state | 2<br>Messenger in AR |
| Different features for the user | 10<br>Communication (social media), marketplace and blockchain-based economy | 3<br>Demonstration of art objects and ads in AR spaces, investments | 3<br>Currently, a game with AR elements; in the future, it will also be used as a job search platform; advertising | 9<br>Communication in AR using avatars-cartoons |
| Value for users* | 10<br>Communications, blogging, AR navigation, training | 3<br>Entertainment objects of augmented reality | 3<br>Entertaining content, gaming | 9<br>A set of templates for avatars and their animation |
| Value for partners | 10<br>Marketplace with advertising tools and customizable access to target audience | 8<br>Property in AR space | 5<br>SMM capability; in the future, a marketplace | 0<br>N / A |
| Total rating | 80 | 36 | 18 | 20 |

*on a 10-point scale according to AROUND's advisers

# PRE-SALE & TOKEN SALE TERMS & CONDITIONS

The ARROUND platform will use the ARR token released after the ICO.

ARR token features:

- The number of tokens is limited to 3,000,000,000 units;

- 1,450,000,000 tokens will be sold at the Pre-sale and Token Sale and 245,000,000 tokens will be offered as a bonus for buyers. Unsold tokens will be burned. For each token sold at ICO, another 0.77 tokens will automatically be created immediately after the Token Sale and allocated to special token funds. For details, please see below;

- The price of 1 ARR at the Token Sale will be US $0.035;

- The ARR token will be used for participating in auctions for the long-term lease of advertising space, as well as to perform all transactions in the system. ARR token will also be required as a deposit for the maintenance of the ARROUND blockchain node.

| PRE-SALE | PRIVATE SALE | MAIN TOKEN SALE |
|---|---|---|
| Pre-sale target is USD 1,000,000 | Minimum purchase of 1 ETH | Token Sale dates: 15.09.2018 – 15.11.2018 |
| 45,000,000 tokens will be offered at Pre-sale | Bonus provided in line with regular discount structure | Softcap is USD 5 million |
| During Pre-sale, there will be a 50% bonus in addition to the number of purchased tokens | | Hardcap is USD 30 million |
| Pre-sale dates: 27.02.2018 - 01.05.2018 | | Additional 5% discount will be offered for purchases over USD 10,000 |

For each token sold at the Pre-sale and Token Sale, another token will be automatically created which is then distributed to the funds listed. As a result, the maximum number of tokens will be 3,000,000,000 units.

The Community Development Fund (CDF) tokens will be used to encourage partners, develop the community and attract new users. These tokens will be used as a reward for content creators and developers involved in developing the ecosystem, as well as for users involved in the pilot testing of the system.

From the first days after the ICO the token buyers will be able to use tokens in the MVP of the ARROUND platform to extend the lifetime of their Rounds (posts).

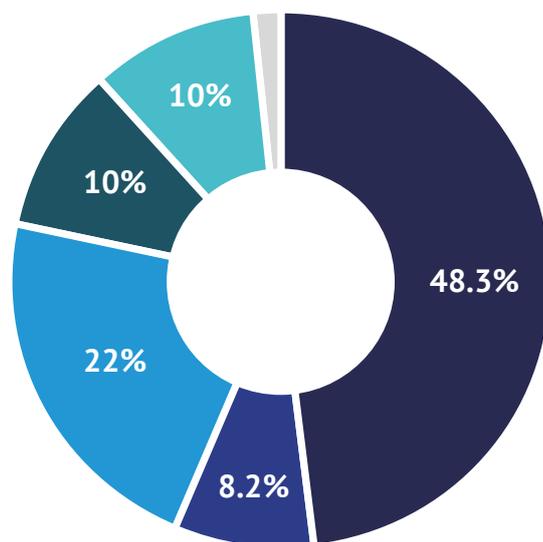In a short time, a host of new features and content will appear on which to spend tokens.

**Token Sale Bonuses**

| Bonus, % | Tokens offered for sale, units | Bonus tokens, units | Total number tokens, including bonus tokens at Token Sale, units | Accumulated number of tokens sold, units |
|---|---|---|---|---|
| **From the start of the Token Sale and until 100,000,000 tokens with the 40% bonus are sold off** | | | | |
| 40% | 100 000 000 | 40 000 000 | 140 000 000 | 140 000 000 |
| **Until 300,000,000 tokens with the 30% bonus are sold off** | | | | |
| 30% | 300 000 000 | 90 000 000 | 390 000 000 | 530 000 000 |
| **Until 500,000,000 tokens with the 20% bonus are sold off** | | | | |
| 20% | 500 000 000 | 100 000 000 | 600 000 000 | 1 130 000 000 |
| **Until the end of the Token Sale** | | | | |
| 0% | 520 000 000 | 0 | 520 000 000 | 1 650 000 000 |

Source: ARROUND Platform

# TOKEN DISTRIBUTION AFTER TOKEN SALE

- 48.3% — Sales (Pre-sale and Token Sale)
- 8.2% — Bonus tokens for Pre-sale and Token Sale
- 22% — Community Development Fund — (including advisers, partners, etc.)
- 10% — The Network Development a fund to support master node holders (NDF)
- 10% — Team
- 1.5% — Bounty



| # | ARR token distribution after ICO | % | Number of tokens, ARR |
|---|---|---|---|
| 1 | The sale of tokens to the project's users (at Pre-sale and Token Sale) | 48.3% | 1 450 000 000 |
| 2 | Bonus tokens for Pre-sale and Token Sale | 8.2% | 245 000 000 |
| 3 | Community Development Fund (CDF) provides remuneration to advisors and new partners, as well as contains token reserve to maintain liquidity within the platform. The fund's tokens will be distributed automatically through smart contracts as a reward for activities to promote the system; for example, as a reward for making posts about ARROUND on popular social media. | 22% | 660 000 000 |
| 4 | Network Development Fund (NDF) — contains tokens to support the owners of blockchain servers and data storage and processing servers The fund's tokens will be distributed automatically within three years through smart contracts. In the first year, it is planned to distribute 50% of the tokens. In the second year — 35% and in the third year — the remaining 15% of the tokens of this fund. | 10% | 300 000 000 |
| 5 | Team The fund's tokens will be frozen for one year following the completion of the ICO | 10% | 300 000 000 |
| 6 | Bounty | 1.5% | 45 000 000 |
| | **Total tokens:** | **100%** | **3 000 000 000** |

For each token sold at the Pre-sale and Token Sale, another 0.77 tokens will be automatically created and distributed in the above-mentioned token funds. As a result, the maximum number of tokens will equal 3,000,000,000 units.

The Community Development Fund (CDF) tokens will be used to encourage partners, develop the community and attract new users. These tokens will be used as a reward for content creators and developers involved in developing the ecosystem, as well as for users involved in the pilot testing of the system.

From the first days after the ICO the token buyers will be able to use tokens in the MVP[1] of the ARROUND platform to extend the lifetime of their "rounds" (posts). With time, new features will appear to on which to spend tokens.

# HOW THE FUNDS WILL BE USED

## COST STRUCTURE WITH INVESTMENTS IN THE AMOUNT OF USD 5 MLN

- 34% — Development
- 9% — Staff
- 31% — Marketing and sales
- 8% — Legal and patent costs
- 10% — Administrative and technical expenses
- 8% — Other expenses
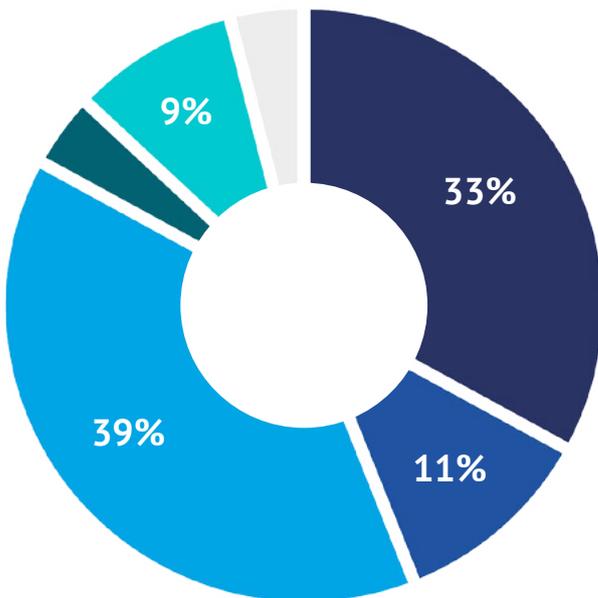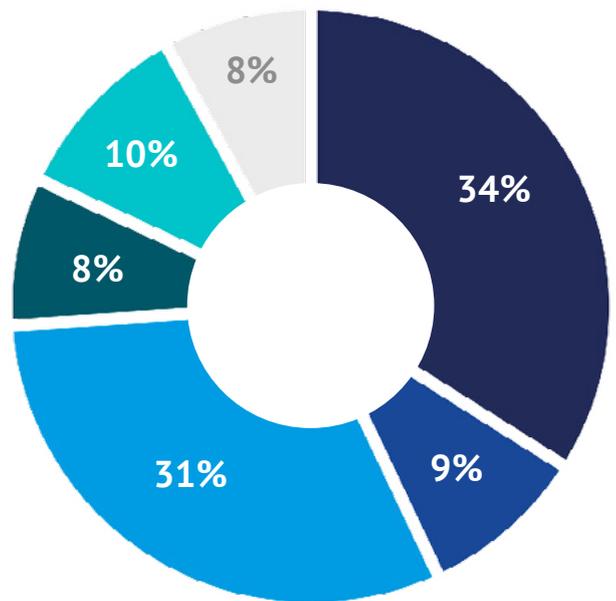
## COST STRUCTURE WITH INVESTMENTS IN THE AMOUNT OF USD 15 MLN

- 33% — Development
- 11% — Staff
- 39% — Marketing and sales
- 4% — Legal and patent costs
- 9% — Administrative and technical expenses
- 4% — Other expenses

## COST STRUCTURE WITH INVESTMENTS IN THE AMOUNT OF USD 30 MLN

- 32% — Development
- 12% — Staff
- 42% — Marketing and sales
- 3% — Legal and patent costs
- 8% — Administrative and technical expenses
- 3% — Other expenses
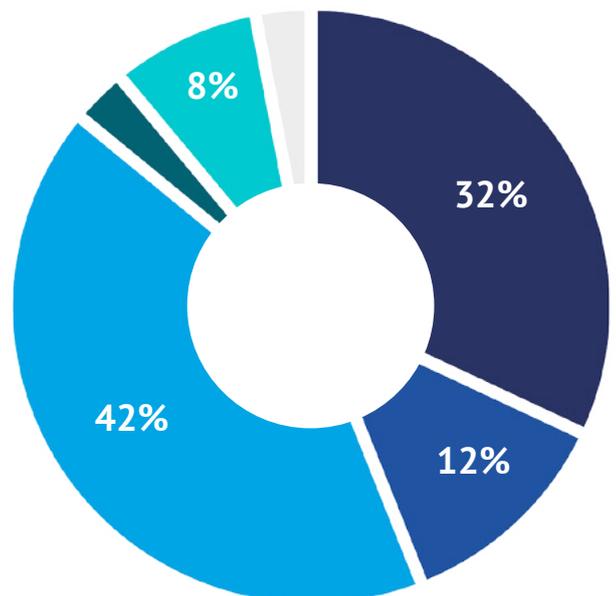
# THE TEAM

# Advisors

### TEMUR SHAKAYA
Founder & Strategic Partnerships Advisor

Serial-entrepreneur and pioneer in the field of the development and commercialization of the pharmacy business in Russia, co-owner and member of the Board of Directors of 36.6, Russia's largest pharmacy chain. Temur is responsible for the creation of some of Russia's leading cosmetics brands and most memorable advertising campaigns. As well as being a dedicated crypto-enthusiast, angel investor and blockchain adherent, Temur also services as President of the Russia-South Korea Business Council.
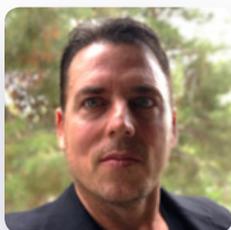
### NATHAN CHRISTIAN
ICO Advisor

Nathan is a technical expert in Blockchain-based accounting and financial applications. He is a Serial entrepreneur with over 35 start-ups in his portfolio. He is deeply entrenched in the blockchain space and has made it both his career and life passion. He is an accomplished blockchain and Fintech international speaker and is a top 10 ranked member of the 'People of Blockchain'. He is also diversely skilled in ICO strategy, development, venture capital investment, consulting and advising. He has his MBA from the Ohio State University and is always seeking to help mentor those in blockchain industry. A few of his current top ICO advisory projects include; TraDove, Friendz, Omnitude, Moonlite, VeriMe, BitRewards, and LedgerScore.

### IGOR KARAVAEV
Advisor, Investor Relations

Successful adviser on blockchain projects, a leading expert on ICObench, and former Managing Director of Skolkovo Foundation, the preeminent Russian business incubator for startups. He has also served as director of development for a variety of major international corporations.

### VLADIMIR NIKITIN
Strategic ICO Advisor

Co-founder of Top ICO Advisor, an accomplished legal consultant, ICO advisor, Blockchain cryptocurrency specialist and a member of several Boards of Directors. With Masters degree in both Law and Economics (Finance and Credit), Vladimir has over 10 years of civil law, finance and Internet technologies experience in various industries such as retail consulting, hospitality and information technology. A Top-10 blockchain expert on ICObench, Vladimir is an active advisor on more than 25 ICO-projects.

### ALEXANDER SHULGIN
PR and Community Advisor

Alexander is unique multi award winning Russian Siberian composer with more than fifty hits songs to his credit, who successfully combines creative work with business. He manages GRUPPA KOMPANIY FAMILIA www.familia.ru, which specializes in investments in Blockchain, new media, publishing, and entertainment sectors. He is one of the world's leading experts in topics such as the transformation of the global economy, blockchain technology and the MES sector (Media, Entertainment and Sport). Alexander is Member of the Expert Council under the Prime Minister of the Russian Federation (responsible for IT and Digital Economy). He was has received a state honor For Professionalism and Business Reputation.

# Team

### NEIL BRYANT RUSSELL

CEO (Chief Executive Officer)

Experienced Internet startup manger, previously led Badoo.com as CEO, building the project to over 50 million registered users worldwide. A graduate of UEA, and originally from a high-tech telecommunications background, Neil possess a unique and successful track record of launching global multi-million user social networking and media projects.

### EVGENY DOBROVOLSKY

Founder & CBDO (Chief Business Development Officer)

A serial entrepreneur and investor in technology start-ups with unparalleled management experience, having led some of Russia's largest corporations successfully through the last financial crisis. Evgeny is the co-founder of Intalev, one of Russia's leading automation outsourcing companies and Founder and CEO of Vladimir Textiles Holding, which has more than 2,000 employees. Evgeny also serves as Chairman of the Board of Soglasie, a leading private pension fund, and is a prominent member of the Russia-South Korea Business Council.

### ARKADY YASASHNIY

CFO (Chief Financial Officer)

Leading financial expert in Russia, having held a number of high profile positions within the country's banking industry, including serving as Managing Director of the Oil Industry at VTB, Head of Corporate Banking at National Standard Bank as well as top management positions at Soyuz and MDM. Arkady is a successful blockchain entrepreneur and a well respected advisor to high-tech start-ups with a well developed network within the crypto community.

### ARTEM HARITONOV

CTO (Chief Technology Officer)

A technical leader for over 10 years, Artem is a graduate of SPb SUT and one of Russia's leading app developers and blockchain specialists. He has an exceptional background developing high-load, complex sites and mobile applications across multiple platforms and languages. Artem is uniquely qualified to develop the technical side of the project's social and commercial elements.

### ANDREY MOLCHANOV

CSPO (Chief Strategic Planning Officer)

Established marketing and public relations director with a stellar background, both client and agency side, in managing advertising and marketing campaigns for new product launches. Andrey has a wealth of experience within the FMCG, media and HoReCa sectors, is a respected strategist who provides exceptional analytical skills coupled with an abundance of creativity.

## ALEXANDER SOKOLOV

CSA (Chief Software Architect)

Alexandr is a successful entrepreneur, promoter and high-tech start-up investor. Founder of Geometria.ru, a popular lifestyle and events website, app and community. A blockchain enthusiast and augmented reality advocate, Alexandr is focused on developing the features that can help AR to bridge the real and digital worlds.

## KATE BUBLIK

Marketing Expert

A digital marketing professional with a solid and successful experience in implementation and development digital strategies and IT solutions worldwide for big enterprises and hi-tech startups. Former Head of digital marketing at SKYFchain, Product manager at FuturTech and Digital Marketing specialist at Experian & Enter Capital. Master of International Marketing, Hult International Business School, San Francisco, US.

# PROJECT ROADMAP

# 2016

The idea of a communication platform powered by augmented reality technology was born after the founders realized that AR was finally on the cusp of mainstream adoption.

Founders take the idea to the business community to discuss its viability and review the key concepts and technologies involved and get overwhelmingly positive feedback.

The idea begins to take shape, and after presentations to potential partners and early-adopters the idea is proposed to build the project around blockchain
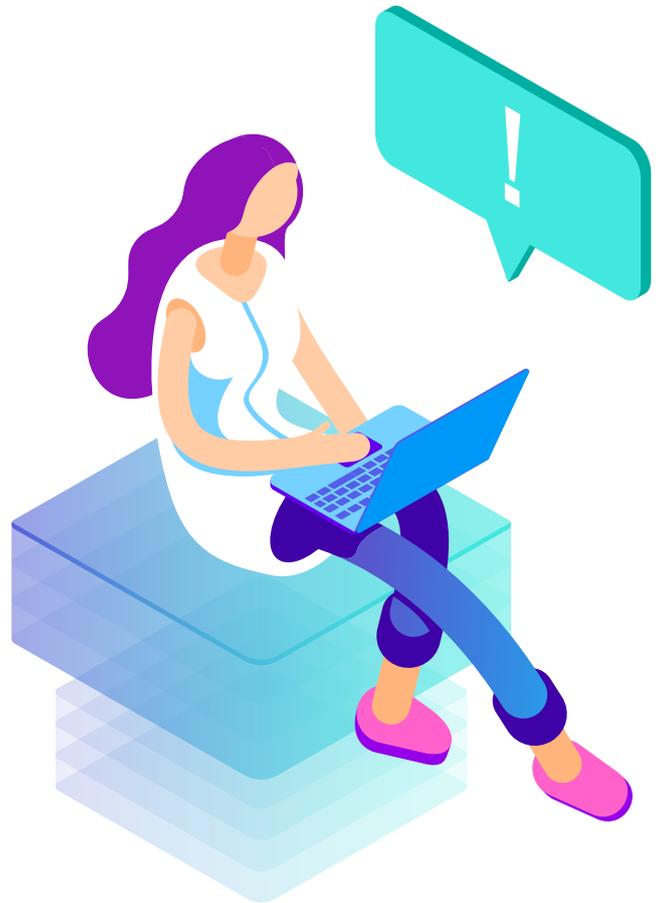
# 2017

The project is given its first technical treatment and a product specification document is completed and the business plan is created.

The first potential partner is engaged, the 36.6 pharmacy chain in Russia.

The team is assembled, the ICO process is planned, the token model and White Paper are created.

The team begins to isolate the key features of the product in order to develop and launch the MVP.

# 2018

ICO is launched in order to provide long-term funding for the project. ARROUND global roadshow begins. A number of additional partners join the platform.

Release of MVP and the launch of advertising campaigns for 36.6 pharmacy chain and Atrium shopping mall and additional partners.

Release of the alpha version of the ARROUND App, the process of filling the platform with content and attracting users gets underway in earnest.
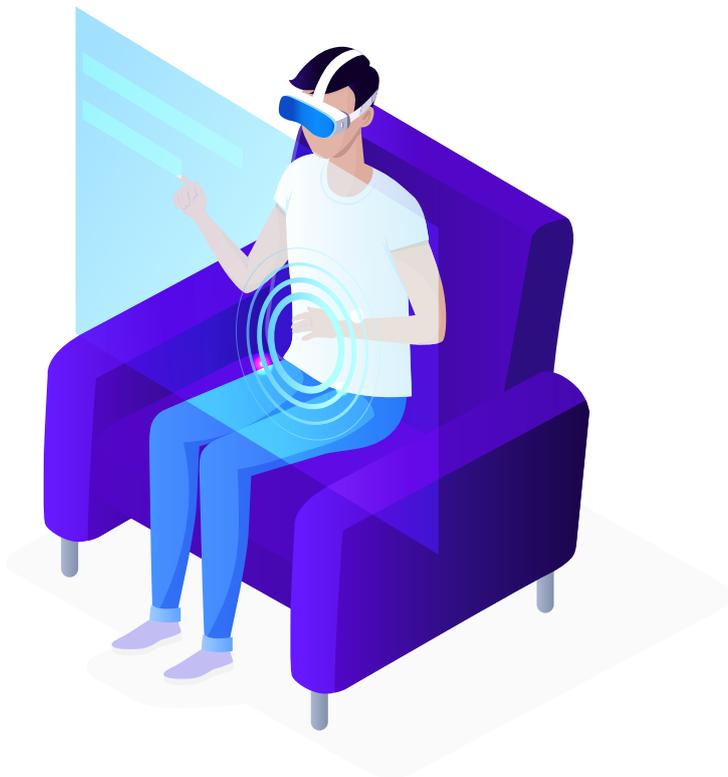
# 2019

Focus is on attracting advertising agencies to the platform.

Launch of advertising campaigns for large pharmacy chains in Europe.

Creation of proprietary constructor for interactive advertising in augmented reality.

Porting of ARROUND to ODG Augmented Reality Glasses and Microsoft Hololens.

# 2020

The first auction to sell advertising space inside the platform on the secondary market.

The process of creating proprietary SDK to attract third-party developers to the platform begins.

The launch of a pilot project in the USA.

Expansion into new markets: China, North America, Japan, Korea, Britain, Germany, France, and the United Arab Emirates.

# LEGAL INFORMATION

# Risks Associated with the ARR Token and Pre-Sale

The ARR Token is a new and innovative product. This memorandum is intended to apprise you of some of the risks involved with purchasing, buying, owning, and using the ARR Token. It does not purport to advise you of all of the risks and other significant aspects of the sale (the "ARR Sale") by ARROUND INC. ("ARROUND" or the "Company") of ARR Network Tokens (the "Tokens"or "ARR Tokens"). You should also consider any additional risks and considerations relating to the Token Sale and consult your own legal, tax, financial, and other advisers before entering into any transaction.

There are a number of risks involved in this Token Sale, as well as the future development, maintenance, and running of the ARROUND Network and Tokens. Some of these risks are beyond the control of the Company. Each person participating in the Token Sale ("Purchaser") should comprehend, consider, and evaluate carefully the risks described below in addition to any

other available information before participating in the Token Sale. Each purchaser should pay particular attention to the fact that, although the Company is established in Belize, neither the Company nor the ARROUND Network has any specific physical presence. In addition, the legal and regulatory position of the Company and the ARROUND Network may vary depending on the facts and circumstances. They, therefore, fall within the purview of one or more jurisdictions, at least to some extent, and the legal and regulatory implications may, therefore, be unexpected. Participation in the Token Sale shall be taken as an action based upon careful and prudent analysis and evaluation, and will be deemed as the relevant Purchaser having been fully informed, advised, and willing to bear all of the risks associated with it, including as set out in this memorandum.

A purchase of the ARR Token is not an investment. Rather, the ARR is a utility token that serves a specific function within the ARROUND Network, which is the only means to access the ARROUND Network and utilize its functions. Without ARR Token, the general public may not access the ARROUND Network. There is no guarantee — indeed there is no reason to believe — that the ARR tokens you purchase will increase in value. They may — and probably will, at some point — decrease in value.

For these and other reasons, we believe the sale of ARR Tokens does not constitute a public offering of securities subject to prospectus registration requirements. However, public policy towards token sales is changing, and it is conceivable that regulators may in the future seek to broaden the scope of regulation of token sales. This could make token sales subject to registration requirements in the United States and similar jurisdictions. If the ARR Token Sale becomes subject to registration requirements, this would delay or potentially postpone the proposed ARR Token Sale indefinitely.

1. **Risks Associated with Purchaser Credentials**
   Any third party that gains access to the Purchaser's login credentials or private keys may be able to dispose of the Purchaser's Tokens. To minimize this risk, the Purchaser should guard against unauthorized access to their electronic devices.

2. **Risk of Unfavorable Regulatory Action in One or More Jurisdictions**
   Crypto-currencies as a form of settlement in trade have been the subject of scrutiny by various regulatory authorities and may be overseen by the legal and regulatory authorities of a number of jurisdictions globally. Governments that are adverse to the proliferation of the use

of crypto -currencies in local commerce could issue laws and regulations deeming the use of crypto-currencies a regulated activity. In recent months, some countries, such as China and Korea, have issued regulations or statements prohibiting token sales, while other countries, such as Gibraltar, have sought to bring the sale of tokens within the regulator control of securities offerings.

The functioning of the ARROUND Network and the Tokens could be impacted by one or more regulatory inquiries or actions, including, but not limited to, restrictions on the use or possession of digital tokens like the Tokens, which could impede or limit the development of the ARROUND Network. The Company may receive notices, queries, warnings, requests, or rulings from one or more authorities upon short notice, or may even be ordered to suspend or terminate any action in connection with the Token Sale or the ARROUND Network as a whole without prior notice. Furthermore, many aspects of ARR also involve untested areas of law and regulation, and could be subject to new laws or regulation, so their legal and regulatory outcome in all relevant jurisdictions is not possible to predict. The planning, development, marketing, promotion, execution or otherwise of the Company or the Token Sale may be seriously affected, hindered, postponed, or terminated as a result. Since regulatory policies can change with or without prior notice, any existing regulatory permissions for or tolerance of the Company, the ARROUND Network, and the Token Sale in any jurisdiction may be withdrawn without warning. The Tokens could be deemed from time to time as a virtual commodity, a digital asset, or even as money, securities, or currency in various jurisdictions and therefore could be prohibited from being sold, purchased, traded, distributed, or held in certain jurisdictions pursuant to local regulations. In turn, the ARROUND Network could be deemed to be a regulated or restricted product. There is no guarantee that the Company can maintain any particular legal or regulatory status in any particular jurisdiction at any time.

3. **CTF and Anti-Money Laundering Regulations**
The United States has issued a series of regulations to combat terrorist financing (Counter Terrorist Financing) and money-laundering activities. Many other countries have enacted similar legislation to control the flow of capital for such illicit activities. The use of cryptocurrencies by bad actors would breach such regulations. Any illicit use of the ARR Tokens could seriously impact the global reputation of the ARROUND Network. In such event, it is not inconceivable that this could trigger scrutiny by CTF and anti-money laundering regulators and potentially cause significant disruption to the distribution and circulation of ARR Tokens in the ARROUND ecosystem.

4. **Blockchain Risks**
On the Ethereum blockchain, timing of block production is determined by proof of work so block production can occur at random times. For example, ETH contributed to the ARR Token Distribution Contract in the final seconds of a distribution period may not get included for that period. Purchaser acknowledges and understands that the Ethereum blockchain may not include the Purchaser's transaction at the time Purchaser expects and Purchaser may not receive ARR Tokens the same day Purchaser sends ETH. The Ethereum blockchain is prone to periodic congestion during which transactions can be delayed or lost. Individuals may also intentionally spam the Ethereum network in an attempt to gain an advantage in purchasing cryptographic tokens. Purchaser acknowledges and understands that Ethereum block producers may not include Purchaser's transaction when Purchaser wants or Purchaser's transaction may not be included at all.

5. **Risk of Insufficient Interest in the ARROUND Network**

It is possible that the ARROUND Network will not be used by a large number of businesses, individuals, and other organizations and that there will be limited public interest in ARROUND services.

Such a lack of interest could impact the development of the ARROUND Network and, therefore, the potential uses or value of the Tokens.

6. **Risk that the ARROUND Network, As Developed, Will Not Meet the Expectations of Purchaser**

The ARROUND Network is presently under development and its governance structure, fees, purpose, consensus mechanism, algorithm, code, infrastructure design, and other technical specifications and parameters may undergo significant changes without notice. Any expectations regarding the form and functionality of Tokens or the ARROUND Network held by the Purchaser may not be met, for any number of reasons, including a change in the design and implementation plans and execution of the ARROUND Network.

7. **Risk of Theft and Hacking**

Hackers or other groups or organizations may attempt to interfere with the ARROUND Network or the availability of the Tokens in any number of ways, including, without limitation, denial of service attacks, Sybil attacks, spoofing, smurfing, malware attacks, or consensus-based attacks. Additionally, there may be attempts to steal the Token Sale proceeds. Such theft or attempted theft may impact the ability of the Company to fund the development or maintenance of the ARROUND Network. While the Company will endeavor to adopt industry best practices to keep the ARROUND Network and Token Sale proceeds safe (including, but not limited to, the use of cold storage and multi-signature authentications), successful cyber thefts may still occur.

8. **Risk of Unpermissioned, Decentralized, and Autonomous Ledger**

The ARROUND Network is being developed in connection with various distributed ledger systems including, but not limited to, Ethereum, which are unpermissioned protocols that could be accessed and used by anyone. The utility and integrity of the ARROUND Network relies on the stability, security and popularity of these decentralized ledgers. The ARROUND Network is envisaged to be an open, decentralized community and its composition can include users, supporters, developers, Token holders and other participants worldwide who may or may not be connected with the Company in any manner. Given the diversity of the underlying technologies, the ARROUND Network is intended to be decentralized and autonomous in nature as far as its maintenance, governance and evolution are concerned.

9. **Risk of Weaknesses or Exploitable Breakthroughs in the Field of Cryptography**

Cryptography is evolving and there can be no guarantee of security at all times. Advancement in cryptography technologies and techniques, including, but not limited to, code cracking, the development of artificial intelligence and/or quantum computers, could be identified as risks to all cryptography-based systems, including ARROUND Network. When such technologies and/or techniques are applied to ARROUND Network, adverse outcomes such as theft, loss, disappearance, destruction, devaluation, or other compromises result. The security of the Company and the ARROUND Network cannot be guaranteed as the future of cryptography or security innovations is unpredictable.

10. **Risk of Abandonment or Failure**

Due to the technically complex nature of the ARROUND Network, the Company or those contributing to the ARROUND software development effort could face difficulties from time to time that may be unforeseeable and/or unresolvable. Accordingly, the development of the ARROUND Network could fail, terminate or be delayed at any time for any reason, including due to lack of funds. Development failure or termination may render the Tokens untransferable, of reduced or no utility, and/or obsolete.

11. **Risk of Lack of Adoption or Use of the ARROUND Network**

The utility of the ARR Tokens is dependent on the popularity of the ARROUND Network. While the ARR Tokens should not be viewed as an investment, they may have value over time. An absence of active users or low level of utilization may negatively affect the long-term development and future of the ARROUND Network, and reduce or obviate the utility of the ARR Tokens.

12. **Risk of an Illiquid Market**

After the ARR Token Launch, the Company is not responsible for and has limited control over the subsequent circulation and trading of the ARR Tokens. The ARR Token is not money, legal tender or currency, fiat or otherwise, issued by any individual, entity, central bank or national, supra-national or quasi-national organization, nor is it backed by any type or quantity of assets, property, or credits, nor does it represent any entitlement to any distributions of profits, dividends, or any other returns or payments of any kind. There is no obligation of the Company, nor anyone else, to redeem, repurchase, or acquire any ARR Tokens from any ARR Token holder. There is no guarantee or assurance that there will be a market or marketplace where holders may readily trade Tokens.

13. **Risk of Price Volatility**

Many cryptographic tokens have volatile prices. Large fluctuations in price over short timeframes occur frequently. Such fluctuations could result from market dynamics (including, but not limited to, speculation), regulatory changes, technical advancements, exchange availabilities, and other factors that impact the equilibrium between token supply and demand.

14. **Risk of Potential Concentrated Ownership of Tokens**

Immediately after the completion of the ARR Token Sale, a number of individuals may directly or indirectly hold significant portions of the total available ARR Tokens. These ARR Token holders may have significant influence over the Company, including its operational decisions. These significant ARR Token holders may, acting alone or in concert, not necessarily make decisions that are in the best interests of the other Token holders or of the ARROUND community as a whole.

15. **Risk of Uninsured Losses**

Unlike bank accounts or accounts at some other financial institutions, funds held using a blockchain network are generally uninsured. In the event of loss or loss of value, there is no public insurer, such as the FDIC or private insurer, to offer recourse to the Purchaser.

16. **Risk of Privacy and Data Retention Issues**

As part of the ARR Token Sale and the subsequent verification processes, the Company may collect personal information from Purchasers. The collection of such information is subject to applicable laws and regulations. All information collected will be used for purposes of ARR Token Sale

and ARROUND community management for the ARROUND Network and may be transferred to contractors, service providers and consultants worldwide as appointed by the Company. Apart from external compromises, the Company and its appointed entities may also suffer from internal security breach whereby their employees may misappropriate, misplace, or lose personal information of Purchasers. The Company may be required to expend significant financial resources to alleviate problems caused by any breaches or losses, settle fines, and resolve inquiries from regulatory or government authorities. Any information breaches or losses will also damage the Company reputation and thereby may harm its long term prospects.

**17.** **Risk of Malfunction in the ARROUND Network**
It is possible that the ARROUND Network malfunctions in an unfavorable way, including, but not limited to, one that results in the loss of ARR Tokens.

**18.** **Risk Relating to Use of the Internet or Other Electronic Medium**
Without limiting the foregoing risks, any communication or transaction via or information (including document) transmitted via the internet or other electronic medium involves risks and, by participating in the ARR Token Sale or utilizing the ARROUND Network, you acknowledge that you understand and accept the following risks:

- We and/or third parties may use such authentication technologies as we deem appropriate. No authentication, verification, or computer security technology is completely secure or safe. You agree to bear all risks of unauthorized access/use, hacking, or identity theft.

- The internet or other electronic media (including, without limitation, electronic devices, services of third party telecom service providers, such as mobile phones or other handheld trading devices or interactive voice response systems) are an inherently unreliable form of communication.

- Any information (including any document) transmitted, or communication, or transactions made, over the internet or through other electronic media (including electronic devices, services of third party telecom service providers, such as mobile phones or other handheld trading devices or interactive voice response systems) may be subject to interruption, transmission blackout, delayed transmission due to data volume, internet traffic, market volatility, or incorrect data transmission (including incorrect price quotation) or stoppage of price data feed due to the public nature of the internet or other electronic media.

- As a result of such unreliability:
  a. there may be time-lags, delays, failures, or loss of data, or loss of confidentiality in the transmission of data and receipt of communications; and

  b. while the Company may believe certain data to be reliable, there may be no independent basis for it to verify or contradict the accuracy or completeness of data.
  This is not an exhaustive list of all of the consequences arising from such unreliability.

- Purchasers are solely responsible for preventing anything which may be harmful to any equipment that they use in connection with the Tokens or the ARROUND Network (including any computer virus, malicious program, or harmful component) from affecting any such equipment, regardless of whether it originated in connection with the ARR Tokens or the ARROUND Network.

19. **Tax Risk Relating to Participation in the Token Sale**

The use of ARR Tokens as a form of settlement currency may or may not be subject to local income tax, capital gain taxes, VAT, or other forms of taxes. The taxability of cryptographic tokens is an evolving area of law, is subject to change, and may vary amongst jurisdictions. This uncertainty in tax legislation may expose merchants and customers alike to unforeseen future tax consequences associated with the use of ARR Tokens. In some instances, there may be little or no formal regulatory guidance. Participation in the ARR Token Sale may have tax reporting implications and liabilities for Purchasers and such liabilities and obligations shall be borne by the Purchasers alone. Purchasers are advised to consult their tax advisors prior to participating in the ARR Token Sale.

20. **Unanticipated Risks**

Applied cryptography and blockchain technology are new and untested. In addition to the risks set forth here, there are risks that the ARROUND team cannot anticipate. Risks may further materialize as unanticipated combinations or variations of the risks set forth here.

# DISCLAIMER

The purpose of this White Paper written by ARROUND project (the "Company") is to present the ARR token (the "Token" or " ARR") to potential holders in connection with the proposed token launch. The information set forth below may not be exhaustive and does not imply any elements of a contractual relationship. The sole purpose of this White Paper is to provide relevant and reasonable information to potential token holders. Holders of ARR are invited to undertake a thorough analysis of the company and to understand the current or potential future values of any acquired ARR tokens.

Nothing in this White Paper shall be deemed to constitute a prospectus of any sort or a solicitation for investment, nor does it in any way pertain to an offering or a solicitation of an offer to buy any securities in any jurisdiction. This document is not composed in accordance with, and is not subject to, laws or regulations of any jurisdiction which are designed to protect investors.

Certain statements, estimates, and financial information contained in this White Paper constitute forw ARR-looking statements or information. Such forw ARR-looking statements or information involve known and unknown risks and uncertainties which may cause actual events or results to differ materially from the estimates or the results implied or expressed in such forw ARR-looking statements.

Future events portrayed in this White Paper cannot be considered as a promise of profit and or as guaranteed forecast of ARR growth. This English language White Paper is the primary official source of information about the ARR Token Launch. The information contained herein may from time to time be translated into other languages or used in the course of written or verbal communications with existing and prospective customers, partners, etc. In the course of such translation or communication, some of the information contained herein may be lost, corrupted, or misrepresented. The accuracy of such alternative communications cannot be guaranteed. In the event of any conflicts or inconsistencies between such translations and communications and this official English language White Paper, the provisions of this English language original document shall prevail.