ARCONA®

AUGMENTED REALITY ECOSYSTEM

Arcona merges real and virtual worlds together creating the cyberspace layer for augmented reality all over the planet's surface – the Digital Land

WHITE PAPER

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1.1.   THE NEED AND OPPORTUNITY

Today, there are no universal tools for scaling Augmented Reality (AR) solutions on the IT market. Without leaving a studio, it is impossible to place AR content with high accuracy in the real world to achieve 100% immersive effect.

All existing technologies require the presence of developers in real world to merge an AR content with real landscape. The development of each AR project is exclusive, requires over need financial and time resources.

At the same time, the society reached the level when it requires access to the Augmented Reality, and the mass market is seeking for the technology for everyday use in all spheres of life.

1.2.   THE SOLUTION

We are solved the main problem of the Augmented Reality — the Scaling for mass-market! Arcona® has created all over the planet the global Augmented Reality layer powered by blockchain called the Digital Land®.

In Arcona augmented reality ecosystem the average cost of AR projects will be reduced from 30.000 USD to 300 USD and time reduced from 3 months to 3 days.

Being a complex solution based on artificial intelligence, neural networks, blockchain and distributive GIS it offers a way of linking 3D content to designated coordinates from anywhere in the real world. The system, thus, solves the problem of scaling the Augmented Reality technology up and opens the path towards an explosive growth of the AR solutions and profiting from them.

1.3.   THE MARKET

In 2017 and 2018, investments in the field of virtual and augmented reality exceeded $ 3 billion per year, and forecasted to grow to $115 billion in 2020. The expected growth rate is more than 130% per year.

The Digital Land as the Global AR layer, created by us, will affect more 30% of the AR market share in the software development segment.

This is the basis for the AR projects to be supplied at the global mass market! By purchasing the Digital the user is able to launch own business

by connecting interactive content with the real world and include it in the global social network of the augmented reality ecosystem.

1.4 COMPETITIVE ANALYSIS

Over the past three years from 2016, Apple, Facebook, Google and other giants who bought them, withdrew a large number of start-ups from the market.

The main trend of 2019 – the creation of a single multiplayer metaverse of augmented reality. This idea is supported by the main players of the AR market - Apple, Magic Leap, international group of companies united in the project Open AR Cloud.

OUR COMPETITIVE ADVANTAGES ARE:

The main feature of Arcona Augmented Reality Metaverse is universal information AR layer – the Digital Land, where users can independently and remotely (from the workplace) place interactive content anywhere in the world. Ready-to-use network of terrain-related markers on the entire surface of the planet. Open modular architecture allowing to integrate third-party solutions.

1.5 CURRENT STATUS

We have a vast experience in AR, since 2013 we already have sold 8 AR outdoor parks in 6 countries: Russia, France, Latvia, Italy, Estonia and Bulgaria with total revenues $450K. Our projects still have no analogues in the world in terms of scale and quality of the content.

Since 2018 we launched project Arcona augmented reality ecosystem, premiering the technological prototype for creating the Digital land, Launched of the AR Viewer prototype and testing own mobile SLAM. Arcona Marketplace launched and the Digital land auctions started.

Arcona token into circulation as a system payment means. Created computer vision library Arcona Core. Created an automated generator of digital land plots. Sold - over 1,200,000 m2. Income - more than $ 500,000

1.6 FINANCIAL PROJECTIONS

The company's goal is to monetize the ecosystem functionality through: sale the plots of the Digital Land, subscribes for SaaS for a land owner,

digital artists and developers, uploading and trafficking of AR content. Revenue projections for the next 5 years: 587M.

1.7   THE TEAM

The company team totally covers of a technology stack includes blockchain, computer vision, artificial intelligence, neural networks, as well as GIS in tandem with SLAM technology.

- Diana Sorina: CEO, Founder; Education: Degree in Economics; 12+ years exp. in marketing, branding, sales and PR. Founder of a branding agency and travel magazine. Team role: marketing and sales.

- Ilia Korguzalov: Project Leader, Founder; Education: Degree in Economics; 15+ years exp. in business development; Founder of a branding agency and travel magazine. Team role: project conceptualization and management, design and market research.

- Tatiana Chernih, Founder; Education: Degree in Journalism; 12+ years of experience in journalism and PR. Team role: leading researcher, PR.

- Daniel Girdea: Founder; Education: Degree in Political Studies and International Relations. 6+ years exp. working and investing in Real Estate & construction business. Team role: Business development.

- Igor Rozhdestvensky: Co-Founder;   Education: PhD in Physics, Theoretical & mathematical; IT and Entrepreneurship 20+ years exp. Team role: Mentor

- Aleksandr Emilianov: Education: Computer Science and Engineering (Ph.D): University of West Bohemia, Plzen, Czech Republic. Lomonosov Moscow State University. Russia. 20+ years exp. in: algorithm and software developer, Computer vision. Team role: R&D lead

- Aleks Zaulichny: CTO; Anton Chernousov: Senior AI developer, Nikolai Kirpan: Senior Computer vision Developer, Konstantin Zhukov: Senior Computer vision Developer, Svetlana Lomp: Senior GIS Developer, Ivan Shabetnik: Senior Web Developer.

2. RATIONALE

"Computers will soon be more powerful than ever before. They will become an integral part of your everyday environment. Instead of logging into your computer or smartphone, you will be able to simply enter a room or go out into the street and manipulate the environment around you in whatever way you like without having to take a gadget out of your pocket."

Walt Mossberg

Why carry a bulky device with you if your calls, messages, TV channels, and games can be sent directly to your headset? All of this diverse content in this almost mystical environment will be at your fingertips. Isn't this what our childhood dreams of magic looked like?

Augmented reality headsets will soon become available everywhere. In this landmark moment in time, mankind will require a universal environment that unites real and virtual worlds in one single information space. This environment is being created today.

Such interlacing of the virtual layer with real landscapes is achieved through combining mobile device tracking technologies and geographical information systems (GIS).

Tools, such as the incredible ARKit, GoogleCore and Windows Holographic, have provided mobile devices with new capabilities. Motion tracking enables a device to understand its position and orientation as it moves in three-dimensional space.

Area learning uses visual cues, the device recognizes its location and can correct its movements. Depth perception sensors tell the device the shape of the world around it, using point clouds to set up virtual interactions.

GIS uses geospatial data, where remote sensing generates digital elevation models and builds textured virtual 3D landscapes in stunning detail, at an accuracy of upto a few centimeters.

The merge of the real and digital world is unavoidable, and there are a key idea to discuss: how to made only step for scaling any project building on AR technology!

When the need for on-site developers for linking virtual content to real landscapes is removed, the integration of digital reality will speed up. Remote positioning of augmented reality content is a step toward scaling the AR technology globally.

3. CAPABILITIES

3.1   HOW TO DRASTICALLY REDUCE COSTS TO AR DEVELOPING

Let's say you're an augmented reality developer and you live in Paris. You want to set a reanimated Godzilla loose on the streets of Tokyo, or revive the Bastille in Paris, or plant a line of snow-covered firs or palm trees along the street outside your window.

You'll have to spend days, weeks, perhaps even months linking your installations with the real world. Add to that the travel costs and hotels (if you decide to do your experiment in Tokyo).

On the plus side, you would get fit from walking in circles up and down the street, scanning everything around you in order to give your app the required area learning. You'd have to do quite a bit of walking since those visual markers you scanned a half an hour ago have already changed.

The sun has that annoying tendency to move around the sky and to change the optical characteristics of space that are required for depth perception. Not only will your markers look different depending on the time of day, but also depending on the time of the year.

You've spent a Hollywood budget in making Godzilla appear in Tokyo, or gone out on the street outside your house every hour for a whole year. Provided that your markers in Tokyo haven't been covered up by new advertising, and your neighbor hasn't repainted their fence, or your markers haven't been blocked out by snow or a blossoming sakura tree, then, and only then, when people who've downloaded your app come to the place you've been "treating", they'll see the wonderful things you've created in augmented reality.

Arcona is a remote positioning and content management system for augmented reality. You will be able to embed your installations remotely in any location on the planet. You will gain access to high-traffic locations, where you will be able to build entire worlds integrated into the real environment.

3.3   HOW TO CREATE NEW JOBS IN THE DIGITAL ECONOMY

Experts predict sweeping job losses in many economic sectors due to the introduction of robotics and artificial intelligence. Many of us

have been tangled up in virtual worlds since childhood, when the games we played taught us skills, including the ability to create 3D objects and trade them.

Finally, these skills can find their real-world application. To get our Arcona Ecosystem working effectively, we plan on opening a marketplace — an online portal where producers and consumers can exchange resources and pay for them using the platform's internal tokens. The portal will be primarily used to sell content, software and Digital Land.

The Arcona system will place many tasks on the marketplace in an auction. Arcona will offer a price for the best solution. The higher the sum, the more developers, actors and professionals will be involved in the project. Similar systems are already in place on such websites as Threadless, 99Designs and TopCoder.

Arcona will use blockchain as a ledger to identify who owns land or content, and who has the right to transfer it, as well as register all transfers. Smart contracts based on blockchain technology will guarantee every content creator and programmer copyright protection and ensure automated payment for the use of their intellectual property.

Smart contracts will also protect the rights of content and landowners.

Arcona will make extracting real-world value from skills developed in the virtual gaming space possible. This will give millions of people an opportunity to make a living in a world more populated than any other virtual universe.

During our work on the project, we discussed possibilities for the application of AR technologies with business professionals from different sectors. When creating this document, we realised that the list of uses would be endless.

We are sharing the ideas which have real humanitarian value and will be the first to affect the augmented reality market. These areas include media, advertising, architecture and design, games and entertainment, tourism, education. You can add projects you find interesting and be assured that they have the potential to become part of the Arcona economy.

3.2   PLACE MARKETING

In 2014 we launched the world's first augmented reality park in a Latvian town Ludza. It's a small town with a population of about 5,000. In 3 years, over 200,000 people have come to see our reconstruction of a Teutonic knights' castle.

Our augmented reality attraction increased the number of tourists by 30% per year. The duration of time tourists spend on visiting this landmark has increased from 15 minutes to 2 hours. This means real customers for local businesses and a welcome supplement to the town treasury.

In 2016, we saw Pokémon Go bringing over 100 million people out on the streets all around the world in just two months. The Pokémon game showed how the simplest of virtual objects attached to the physical world, even conditionally, can increase the attractiveness of any location, and affect people's behavior and perception.

Arcona is a system that will allow future generations of Pokémon to use the real landscape and play real hide-and-seek with the users. Soon, it will be possible to link 3D objects of any complexity with no space limitations at a click of a button

4. COMPANY OVERVIEW

4.1   THE VISION

In 5 years from now, as a mature company, we will become an industry standard in developing World Wide Augmented Reality Layer – an metaverse, merging the physical and virtual worlds as one space in which users can interact with a computer-generated environment and other users in real world

World Wide AR layer is designed for everyday user interactive experience with augmented, virtual and mixed reality multimedia content. The augmented reality environment is available through a free ARViewer, installed on the user's mobile device

4.2   THE NEED AND OPPORTUNITY

Today, there are no universal tools for scaling AR solutions on the IT market. Without leaving a studio, it is impossible to place AR content with high accuracy in the real world to achieve 100% immersive effect.

All existing technologies require the presence of developers in real world to merge an AR content with real landscape. The development of each AR project is exclusive, requires over need financial and time resources.

At the same time,   the society reached the level when it requires access to the Augmented Reality (AR), and the mass market is seeking for the technology for everyday use in all spheres of life.

At the stage of mass availability of AR gadgets, users and content producers will need a single environment for convenient and correct placement, interaction and exchange of augmented reality content.

4.3   THE SOLUTION

We are solved the main problem of the Augmented Reality — the Scaling for mass-market!

Arcona® has created all over the planet the World Wide Augmented Reality Layer called the Digital Land® .

In Arcona augmented reality ecosystem the average cost of AR projects will be reduced from 30.000 USD to 300 USD and time reduced from 3 months to 3 days.

Being a complex solution based on artificial intelligence, neural networks and distributive GIS it offers a way of linking 3D content to designated coordinates from anywhere in the real world.

The solution is based on augmented reality environment modeling Platform for remote superposition of virtual objects over planet's surface relief.

4.4   THE MISSION

Our goal is to eliminate the presence of developers in a variety of remote locations in order to design, create and manage augmented reality environment

Set up of public information space as the global layer of augmented reality connecting the physical and virtual worlds anywhere in the world as an augmented reality metaverse.

Free access for a wide range of users to the functions of the software, which allows to change the surrounding augmented reality space on the fly.

The system, thus, solves the problem of scaling the Augmented Reality (AR) technology up and opens the path towards an explosive growth of the AR solutions and profiting from them.

This is the basis for the AR projects to be supplied at the global mass market! Even a child could easily create a multi-user application in a single social network and share this creative potential with an unlimited number of people viewing the project everywhere in the real world.

By purchasing or renting the Arcona Digital Land the user is able to launch his/her own business by connecting interactive content with the real world and include it in the global social network of the augmented reality ecosystem.

4.5 THE EXPERIENCE

We have a vast experience in AR, since 2013 we have created a series of augmented reality parks in spaces. Our projects still have no analogues in the world in terms of scale and quality of the content.

4.6 EXPERT ASSESSMENTS

Since the company was founded, it has passed several independent examinations:

- The product, technology, and the anticipated results of the applied research has competitive advantages over its global equivalents;
- The product, technology, and the anticipated results of the applied research has a significant potential for commercialisation within Russia and globally;
- The project is theoretically feasible and does not contradict the laws of science;
- The project's team (key researchers, developers and project managers) have the knowledge and experience required to bring the project to completion and conduct the required applied research;
- The project team includes experts with international experience in research and development, as well as experience in commercialising results.

We were evaluated by the St. Petersburg Pre-seed Investment Fund in 2013, resulting in an investment.

In 2014, we were evaluated by Microsoft Seed Fund and were provided with a grant.

In 2015, the company underwent a thorough, multi-level review by the international expert panel of the Skolkovo Innovation Centre in Russia.

The panel included independent consultants, scientists and business people. As a result, Piligrim XXI became a Skolkovo resident.

4.6 OUR TRUSDED PARTNERS

Received grants, acceleration programs, pilot projects and positive feedback from:

Aerostream GEOSCAN HUAWEI intel SAMSUNG Microsoft magic leap Google Sk Skolkovo Booking.com booster

4.7 ROADMAP AND MILESTONES

2014
Launched worldwide first outdoor AR park – "Ludza Castle." It increased by 30% the flow of tourists in the region, attracting more than 60,000 tourists/year.
Microsoft Seed Fund grant, Accelerations: Intel, Google, Faber Novel.

Top 50 russian startups with highest rating AAA.

2015
Launched Aurora AR parks at Russia
Launched Altun AR parks at Russia,
Launched Bastille fortress AR park at France.

TOP 10 world startups on "Futur en Seine", Paris, France.

2016
Launched AR parks the Forum PompeII at Italy
Launched AR park the Road of Life at Russia,
We began to develop our own Computer Vision system.

2017
We already have launched 8 AR outdoor parks in 6 countries: Russia, France, Latvia, Italy, Estonia and Bulgaria. Started to develop our own augmented reality platform to remotely positioning and management digital assets.

2018
The Arcona® team is premiering the technological prototype for creating the Digital land
Launch of the AR Viewer prototype, testing of remote positioning tools.
Marketplace launched and the Digital land auctions started
Arcona® token into circulation as a system payment means.

2019
Running the beta version of AR Viewer with basic functionality. Placement of basic information content in test locations. Motivating users to use the software to earn tokens. Launching Partner's projects.

The AR GRID positioning system will be implemented in the 10 largest metropolitan areas of the planet. "Digital lands" will be put on sale with a total area of 1500 km².

2020
Georeferenced AR territories will be expanded to 40,000 km², the World Wide Augmented Reality Grid will be created.

5. TECHNOLOGY

5.1 DESCRIPTION

Arcona is a universal information space that unites the real and virtual worlds in a single ecosystem. It is a peer-to-peer network with an infrastructure including a Digital Land Registry and other digital assets.

The Arcona Ecosystem platform combines functions of distributed GIS, augmented reality, 3D simulation, Computer Vision, Optical pattern recognition, Artificial intelligence, and blockchain architecture.

Positioning technology based on SLAM (Simultaneous Localization and Mapping). SLAM is a method for updating a map in a previously known space with simultaneous control of the current location and the path traveled, based on 3D markers - real-world objects with high-resolution terrain maps supplied by third-party GIS

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The augmented reality layer can be accessed on location by using customer-facing app AR Viewer with mobile devices, such as smartphones, tablets, smartphones with AR headsets, standalone AR glasses and headsets like HoloLens, AR contact lenses, and others.

AR Viewer is a free, cross-platform multi-user software program that enables participants to see augmented reality objects in a real-world environment.

5.2   COMPONENTS AND FUNCTIONS

AUTOMATED MODELLING SYSTEM
FOR THE AUGMENTED REALITY ENVIRONMENT:

This system performs the following tasks:

• Builds 3D landscape models based on high resolution geospatial data obtained from GIS and other information from the public domain (photos, etc.);

• Identifies likely paths of movement for the user in the given land plot;

• Generates objects-markers to determine the user's location (the location of the user's device);

• DATABASE MODULE: This module executes a database management system (DBMS), to store landscape models and provide remote access to them for dealing with various types of request.

INTEGRATED MODELLING ENVIRONMENT: A toolkit to create and maintain software and to manage and edit content.

AR VIEWER: A freeware client for mobile devices with a positioning system used for correctly displaying augmented reality objects at a given location.

BLOCKCHAIN: A set of scenarios which enable users to adjust their P2P relationships and payment methods for various platform functions. A fast payment system for internal transactions with low commission. It is the key to the rapid economic development of Arcona's world of augmented reality.

5.3   ADVANTAGES

• Experienced team (more than a 5-year experience in the international market of solutions for the AR industry)

• Confirmed concept (since 2014, a series of interactive augmented reality parks in the open air was created and launched)

• Active audience

• Technology stack (we are completing a preparatory stage of development for a coming launch of proprietary technology of remote positioning of 3D augmented reality content in the real world. The stack includes Mobile SLAM, CV, AI, GIS Geospatial Data, landscape 3D modeling and blockchain)

• Registered trademarks

• Mass consumer orientation - the platform provides the people with no specific skills with the simplest tools for creating AR projects

• Global market for technology implementation through remote launch of interactive projects anywhere in the world

• Versatility of the platform (the platform will be connectible and functioning on most mobile systems, including outdated low-cost models, initially focused on compatibility with various AR devices)

• High demand for the project from manufacturers of mobile gadgets, AR headsets, 5G providers

• Reduction of time and financial costs for the implementation of AR projects in the open air by almost 100 times

5.5   DISADVANTAGES

• Visualization is limited by the screen of the mobile device (until AR headsets and lenses enter the mass market)
• Dependence on the Internet coverage at a place of installation
• The rapid development of the technology depends on the large-scale implementation of 5G
• Requirements of a connectible mobile device for the end user
• Innovative experimental development is difficult to schedule in terms of timing and financial investments.

5.4   NTELLECTUAL PROPERTY

Registration of ARCONA in the EU, China, Japan, application at the examination stage in Korea, registration in the USA is planned.

Patent documents for the following technologies are being prepared:

1.   Library of computer vision Arcona Core. It provides marker-free localization functionality for creating any applications of augmented reality.

2.   An alternative method of comparison, based on the analysis of straight lines.

3.   An automated generator of Digital Land plots suitable for locating AR objects. This is a universal algorithm that allows you to "detail" the earth's surface, distributed over it by a continuous network of equal hexagons, taking into account the peculiarities of the relief.

4.   The automatic pricing algorithm on digital lands, which relies on huge amounts of information relating to, for example, geographic data, data on availability and patency, as well as sociological research on the population and guests of the territory.

6.THE DIGITAL LAND

Arcona® economy is based on the generation of an augmented reality layer called Digital Land®. It is a limited digital asset described as ERC721 token in the Ethereum Smart Contract, and it can be acquired in exchange for an Arcona ERC20 token.

6.1   THE DIGITAL LAND OVERVIEW

The Digital Land is a asset of cyberspace and real world. Digital layer of the augmented reality ecosystem is divided into plots perfectly linked to real world objects at the exact coordinates. The land plot ownership is contracted in blockchain.

The Digital Land is a intellectual asset. The project technology stack includes blockchain, artificial intelligence and neural networks, as well as GIS in tandem with SLAM technology.

The Digital Land is a limited asset. The Digital Land plots are tied to the most famous and popular locations of the planet, receiving the highest volume of human traffic in a year: the Eiffel tower, New York stock market, Roman Colosseum and others.

Digital Land is a market asset demand. The Digital Land plots auctioning off on the Arcona. Marketplace have increased sharply – by 500 per cent - in value. The similar VR project Decentraland prices of land rose from $100 to $1500.

The Digital Land is an opportunity to make money. Your property will be turning a profit through resale, renting out and any kind of content placement.

The Digital Land is the freedom of creation and business. The Arcona® technological platform allows to remotely manage your property online from anywhere in the world.

6.2   THE MAIN SERVICE

The main service provided by Arcona is the augmented reality layer, the Digital Land. This system provides access to a development framework containing a 3D simulation of the Earth's landscape and the functionality to create an augmented reality environment.

Logically, since the Digital Land is linked to the Earth's surface, its scope has a natural limit of 12% of the Earth's surface utilized by humans, i.e. 18 trillion m2 .

The augmented reality layer, hosting remotely positioned virtual objects, is divided up into equal parts of 100 m² each. Land plots can be purchased in exchange for arcona token.

A single physical server can generate a plot of around 200x200 m. Each plot can support a limited number of virtual objects and simultaneously connected visitors. This is known as the land's capacity.

By collecting a pool of several land plots, the capacity can be increased, and more objects and a higher number of users connected can be supported. With Arcona® it is possible to pool together a group of non-adjacent plots and transfer the capacity of all the plots within the pool to a single plot.

This is called capacity transfer. This makes it possible for the system to generate the augmented reality layer and make full use of Digital Land® plots outside of high-traffic areas.

6.3   WHY BUY OR RENT THE DIGITAL LAND PLOTS?

Owning or renting a plot of Digital Land is an exciting opportunity for creative users and a profitable occupation for private enterprises. You can buy land to place the virtual objects you create or purchase in the marketplace in the real world.

Your land means your rules. You can transform the world on the lawn outside of your house or develop commercial project thousands of miles away on another continent. The digital layer is your domain, and you can shape it to your taste.

Every plot of Digital Land is linked to a specific real-world location — a place where you can bring real people and share the results of your labour by organizing shows, presentations and games.

6.4   VALUE OF THE LAND

The value of any plot of Digital Land is determined by its popularity. Places like the centers of large cities with high populations are limited and would have the highest popularity.

We feel that there will be mass adoption of the Arcona Ecosystem. We will also invest heavily in its development and promotion. We plan to turn the existing traffic in the real life into traffic in the ecosystem.

By launching and selling Digital Lands gradually — city by city, quarter by quarter — the deficit of Digital Land will be growing, which will fuel greater interest among future landowners.

This greater interest is the foundation on which we will build the auction system to enable Digital Land trading. This allows the community to independently determine the market value of Digital Land in the system. The price of plots sold in auction determines the average price of other plots.

Another variable determining the value of Digital Land will be profitability. The plot of Digital Land brings money by attracting users to paid content, e.g. an AR museum entrance fee at the site of historic ruins or a participation fee for joining an interactive multiplayer game. The profits will be higher from a digital plot that has been advertised in a territory with more traffic.

Another example: Attendance of a central location in a city ranges from 50,000 people per day (Paris, the area in front of the Eiffel Tower) to 100,000 (Beijing, Forbidden City of Gugun). This is comparable to the attendance of an average news website. The banner on such a site would cost about $300 per month.

The placement of terrestrial advertising in these locations is often prohibitive. 1 billboard per month would cost at least $10,000. Our calculation is that in Arcona, in key locations, a single interactive banner can cost at least $50 per month.

The owner of 100 m2 can place 10 banners, so the minimum advertising income from 100 m2 bought for $100 will be $6000 per year. The income from one dollar spent for the land is $60.

You can open a virtual shop in a real location and start selling any sort of product. For doing this online in any location without leaving your house, you'll need to get a Digital Land plot.

6.5   DIGITAL LAND AS A COMMODITY

What makes the Digital Land as a commodity unusual is not the land itself that is bought, but the income that can be made by developing the infrastructure and activating the entrepreneurial potential. You buy the right to receive regular income because of your labour. The more you make from the plot, the higher the cost of the land.

Every plot of Digital Land comes with geographical coordinates, landscape marker descriptors, a basic set of tools to manage AR content, and a channel to contact the platform's management system.

6.6   TYPES OF DIGITAL LAND PLOTS

- Global network: Arcona® landowners and private landowners.
- Region: a 200 x 200 m section of the network or 40,000 m2 of Digital Land®.
- Plot: a part of a region with an area of 1 are (100 m²).
- Private landholding: one or several plots owned by a single user.

Users can remotely buy, rent, manage, lease and sell their augmented reality layer plots. Within their holdings, users can create, display, share or sell augmented reality content.

A user's right to ownership over virtual land is encoded in a blockchain contract with the registry number for every 1 are (100 m2) plot linked to a specific set of geographical coordinates.

7. ECOSYSTEM RESIDENTS

Landowners, tenants, developers and users are the categories considered as residents in the ecosystem. Landowners may buy and sell land, lease it, and place AR content on land plots.

- Tenants may rent land, sublease it, and place AR content on the rented plot per the conditions stipulated by the landowner.
- Developers can create software or content. A developer may define the rules of usage for the work they create.
- A user in the real world can access all the system's services through an AR viewer and can buy and sell digital assets.
- Landowners can bring an unlimited number of users of augmented reality content to the plots they own. The popularity of each plot will depend both on the quality of content and on the popularity of the real territory.

For example, the demand for AR content in Paris will be considerably higher than that in the Mauritanian Desert. This contributes to developing a secondary market for land, rent, content and advertising. Landowners control what content is published in their holdings.

This content can vary from a static 3D scene to an interactive system. A landowner may do as they wish with their land plot, including the following actions:

Place any digital content in their territory. The smart contract may include a number of restrictions as to the nature of the content (content associated with violence, adult scenes, etc.);

Schedule a showing of content for users (games, guided tours, educational programs, promotions, AR attractions, etc.);

Lease the plot or sell it to another owner;

The amount of server space allocated to a single plot is limited, so the owner can buy additional capacity from the community or buy unoccupied land plots and transfer the capacity to their own holdings.

Content creators, i.e. code developers, 3D artists and authors of other works uploaded into the system, can use the copyright. These conditions are described in the smart contract.

There are bonuses for users who help to develop or test the system. They help to improve the positioning of the system in the surrounding area by accepting the transfer of data from their device to the system server.

8. MARKET

Our company works in the information and communication technologies (ICT) sector, which is involved in the creation of infrastructure and components to assist with modern computing technologies.

Although there is still no generally accepted definition of ICT, the term is usually applied to all devices, network components, applications and systems that collectively enable people and organizations to interact in the digital world. Since its creation, the company's main focus has been on developing augmented reality (AR) technologies.

8.1 THE MARKET SECTOR, SEGMENT, AND SIZE

Our company works in the ICT sector. Information and communications technologies is the infrastructure and components that enable modern computing.

Although there is no single, universal definition of ICT, the term is generally accepted to mean all devices, networking components, applications and systems that combined allow people and organizations to interact in the digital world.

Our segment is the market of Augmented reality software.

8.2 AR MARKET OVERVIEW

Availability of cheap sensors and existence of a large number of potential options of application in user applications are drivers of this growth. Pokemon Go is an excellent example of potential of technology. The research Bain & Company predicts significant increase in rating of adaptation of technology from 13 to 42%.

According to Digi-Capital, in 2018 mobile AR delivered at over $3 billion globally, driven by appstore revenues (primarily Pokémon Go), adspend (e.g. from mobile AR features in messaging apps) and eCommerce sales (e.g. Houzz delivering 11x sales uplift). Mobile AR installed base (i.e. configured devices) grew more slowly than anticipated to over 850 million globally.

Smartglasses had a mixed 2018, with Microsoft HoloLens winning a $480 million US military contract, Magic Leap launching more of a dev kit than a consumer product, and other early smartglasses pioneers reported to be selling assets or furloughing staff. Smartglasses revenue

2023 column totals in chart are in $70B to $75B range for AR (mobile AR/smartglasses) and $10B to $15B range for VR (mobile, standalone, console, PC) revenue

■ Mobile AR ■ Smartglasses ■ Premium Standalone VR ■ mobile Standalone VR
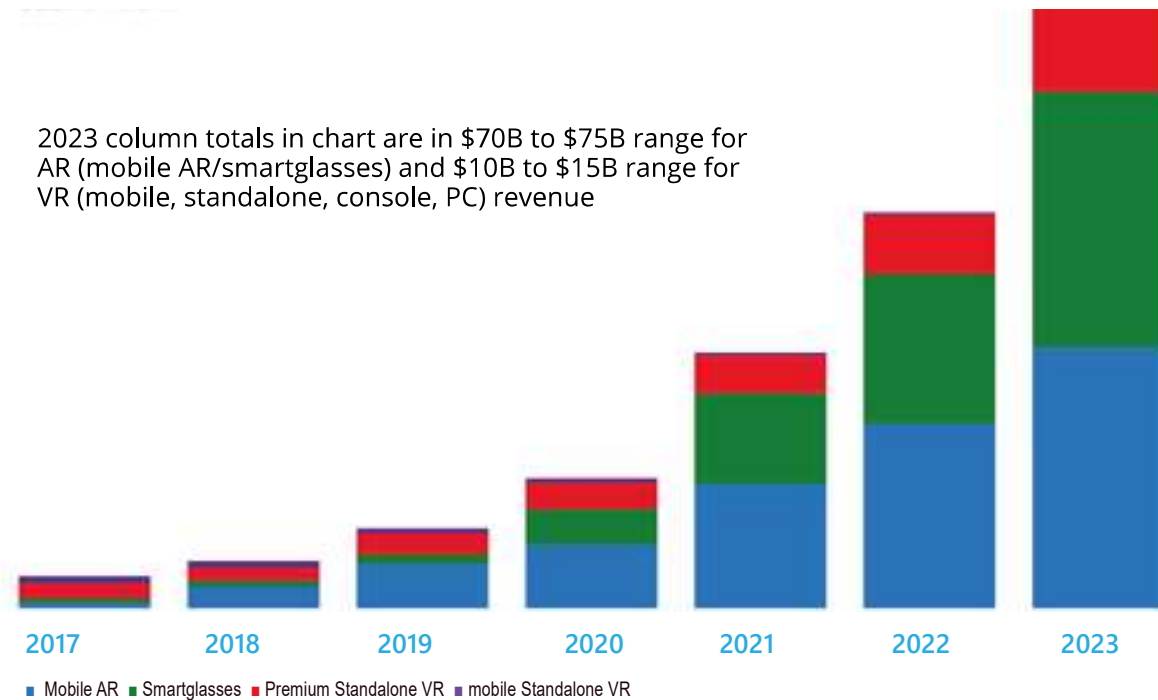
(mainly hardware and enterprise solutions/services) was in the hundreds of millions of dollars, which together with mobile AR delivered total AR market revenue 3% lower than anticipated.

8.3   MARKET FORECAST

According to International Data Corporation, worldwide spending on augmented reality and virtual reality (AR/VR) is forecast to be nearly $20.4 billion in 2019, an increase of 68.8% over the $12.1 billion expects will be spent this year.

The latest update to IDC's Worldwide Semiannual Augmented and Virtual Reality Spending Guide also shows that worldwide spending on AR/VR products and services will continue this strong growth throughout the 2017-2022 forecast period, achieving a five-year compound annual growth rate (CAGR) of 69.6%.

8.4   AR/VR PLATFORM REVENUE

2023 column totals in chart are in $70B to $75B range for AR (mobile AR/smartglasses) and $10B to $15B range for VR (mobile, standalone, console, PC) revenue. Early market developments indicate adoption of

Augmented/Virtual Reality Revenue Share 2020F
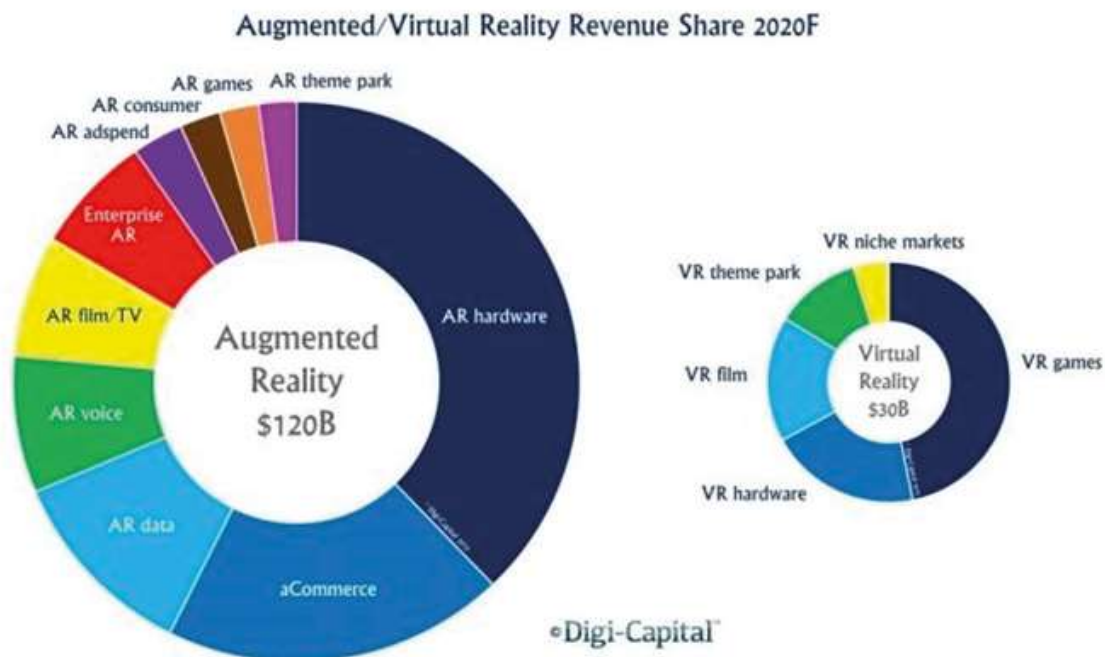
AR/VR technologies on a worldwide basis will expand for a decade or longer. The innovators that serve a broad base of industries support dynamic end user needs through the growing options in hardware and software solutions.

The services will play a more prominent role in enterprise investments as the market matures.

Worldwide spending on AR/VR solutions will be led by the commercial sectors, which will see its combined share of overall spending grow from 64.5% in 2019 to more than 80% in 2022.

The industries that are expected to spend the most on AR/VR in 2019 include personal and consumer services ($1.6 billion), retail ($1.56 billion), and discrete manufacturing ($1.54 billion).

Ten industries are forecast to deliver CAGRs of more than 100% over the five-year forecast period, including state/local government (123.7% CAGR), resource industries (120.9% CAGR), and wholesale (120.9% CAGR). Consumer spending on AR/VR will continue to be greater than any single industry ($7.2 billion in 2019) but will grow at a much slower pace (36.6% CAGR).

Consumer spending volume will determine three of the four largest AR/ VR use cases in 2019: virtual reality games ($4.0 billion), video/feature viewing ($2.0 billion), and augmented reality games ($616 million).

The only commercial use case to crack the top 4 in 2019 will be training ($1.8 billion), but two other commercial applications – online retail showcasing ($558 million) and industrial maintenance ($413 million) – will become firmly established. With a five-year CAGR of 119.2%, industrial maintenance spending will nearly overtake augmented reality gaming in 2022.

Several other commercial use cases (lab and field, retail showcasing, anatomy diagnostics, and internal videography) are forecast to see CAGRs greater than 100% over the forecast period.

Hardware will account for more than half of all AR/VR spending throughout the forecast, followed by software and services. The largest category of hardware spending will be host devices, but AR viewers will make notable gains with a five-year CAGR of 128.3%. AR software spending will make similar gains with a five-year CAGR of 121.8%, overtaking VR software by 2021.

And services spending will be bolstered by strong CAGRs for AR custom application development (133.0%), AR systems integration (130.4%), and AR consulting services (121.9%). The strong growth in AR hardware, software and services spending will push overall AR spending well ahead of VR spending by the end of the forecast.

8.5   INVESTMENT IN TO INDUSTRY

In the last two years there were favourable conditions for investment into technology of augmented reality, and all large technological companies do serious investments in this industry.

By far the largest investment category by value (dollars invested) was core tech, particularly Chinese companies crossing over between computer vision and AR (so not AR pureplays).

Even removing these crossover investments from the numbers, there was still significant investment with Chinese companies in AR advertising, lifestyle and smartglasses categories completing $100 million plus deals.

AR/VR INVESTMENT VALUE (DOLLARS BY STAGE)

2017 Q1　2017 Q2　2017 Q3　2017 Q 4　2018 Q1　2018 Q2　2018 Q3　2018 Q4

■accelerators ■angels ■crowdfunding ■pre-seed ■seed ■seriesA ■series B ■series C ■series D ■series E ■series F ■ICO ■PO ■Post IPO equity ■Grants
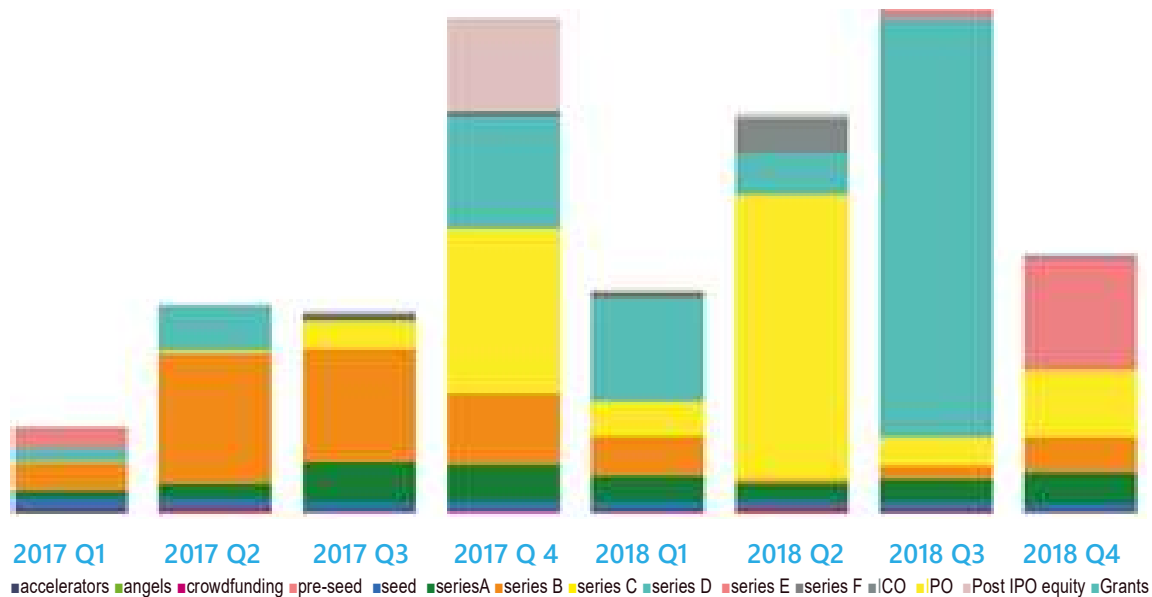
In the West, smartglasses company Magic Leap did the biggest deal with its $461 million round. Mobile AR games company Niantic also raised a large series C, some of which was revealed in December and which was finally announced as having topped out at $245 million with a nearly $4 billion valuation in January (note: the January portion is not included in the 2018 numbers). There were other deals ranging from hundreds of thousands to tens of millions of dollars across over 20 AR/VR categories last year.

The first three quarters of 2018 saw massive growth of investment in China, together with significant decline in the US. Q4 2018 returned to more normal historic levels of deal flow and dollars invested globally (including in the US), but the first two quarters of the year could set the tone for AR/VR investment to come.

8.6　EXAMPLES OF DEALS IN 2015 – 2018

Epic Games raised a massive $1.25 billion funding round in October from KKR, ICONIQ Capital, Smash Ventures, aXiomatic, Vulcan Capital, Kleiner Perkins, and Lightspeed Venture Partners.And while investors are surely salivating over Epic's cross-platform battle royale sensation Fortnite, Epic's Unreal Engine also competes with Unity as a leading 3D development platform for AR apps. As the market for AR apps grows, the demand for AR software development tools will increases in proportion.

Magic Leap. In a continuation of the Series D funding round that netted the company $502 million in October 2017, Magic Leap raised another $461 million led by Saudi Arabia's Public Investment Fund (PIF) in March. The famously well-funded augmented reality unicorn has raised more than $2.3 billion total, which doesn't include AT&T's strategic investment of an undisclosed dollar value as part of its Series D round.

Niantic. Pokémon GO developer Niantic reportedly raised another $200 million in 2018, led by venture capital firm IVP, with Samsung Electronics and aXiomatic Gaming also participating. The new influx of cash appears to be fueled by the momentum of Niantic's location-based AR gaming and the development of its new AR cloud platform, the Niantic Real World Platform. Previously operating within the confines of Google, before being spun off on its own as a separate company, Niantic raised the same amount in 2017.

Unity. Silver Lake infused Unity with a $400 million strategic investment in May 2017. Already the leading development environment for augmented and virtual reality content, the investment enables Unity to continue the growth of its AR and VR capabilities.

CTRL-Labs. Gaining interest from Google Ventures and Amazon's Alexa Fund, CTRL-Labs raised $28 million for its neural interface technology.

Ubiquity6. AR cloud company Ubiquity6 double-dipped the funding well in 2018. The startup raised a $37.5 Million with backing from Google Ventures, Benchmark and Index Ventures.

Mojo Vision. In one of the more intriguing entries, Mojo Vision raised $50 million for its "invisible computing" technology, with Shanda Group, Khosla Ventures, NEA, Fusion Fund and others participating. The startup hasn't revealed what its product is, but, so far, it has promised hands-free AR without smartphones, tablets, or "other devices."

Leap Motion. Standing alongside Unity, Unreal, and Vuforia as the top development tools for AR experiences, Leap Motion closed a Series C round of $50 million in July 2017.

Google buys Eyefluence, which builds eye-tracking technology for AR / VR - $14M

Apple buys Metaio - AR platform developer - $30M

DAQRI Acquires ARToolworks - Software developers for helmets similar to Hololens - $38M

PTC bought Vuforia (AR platform developer) from Qualcomm for $65 million. One thing this list makes clear is that investors are putting more resources behind hardware and the companies making the tools that developers will end up relying on to build AR as well as app developers who have already demonstrated measurable success.

8.7 COMPETITIVE ADVANTAGES OF THE ARCONA PLATFORM

Accurate remote placement of augmented reality objects in a changing environment. The ability to link virtual content with real landscapes anywhere in the world, regardless of size. A ready-to-use network of markers anchored in the landscape all over the world. An open, modular architecture, making the integration of third-party solutions possible. A universal augmented reality environment connecting developers and consumers. The ability for a wide range of users without any particular programming skills to create and monetize content within the augmented reality environment.

The ability to visually combine virtual and real spaces which correctly adapt to the user's movements.The ability to significantly reduce the load on mobile devices when carrying out computer vision-related tasks.

The ecosystem has a major social significance, since it gives creative people the opportunity to present their projects to the wider public.

Arcona will be a unified platform, where a broad community of developers and users will communicate and share experiences, which in turn will facilitate the development of AR technologies and make the platform an industry standard..

Tab №1 EXAMPLES OF PLATFORM USES

Markets	Buyers	Platform usage options
Advertising	Brands, Local companies	Ad placement
AR development	AR App developers	Saves time, money, and production resources. A convenient development environment, the ability to provide a wider audience with their work.
	Users	
	IT Companies	
Construction market	Project companies	Demonstration of the project to the client and investor using AR applications.
	Constructors of high-rise and low-rise buildings, infrastructure facilities.	- The solution for integration of virtual objects of the project into the real landscape - from concept stage to production stage. - Demonstration of the project to the customer and investor. - Monitoring the stages of construction and their adjustment, staff training and support for high-tech production stages. - B2C sales support.
Entertainment market	Game Developers	Solution for creating interactive multiplayer gaming projects. Attracting more users, the ability to quickly and regularly change the content. Change and supplement the content of any area expanding the location.
	Entertainment company: Mass entertainment, representations	The solution for creating interactive installations for a specific event: Attracting more visitors, the ability to quickly and regularly change the content for a specific event.
	Promotion company	Promotion of films. Placement of virtual characters of films, trailers, creating a new format for demonstrating the plot in a real environment.
	Theme parks	The solution for completing physical attractions: quests, games, climbing walls, just visual effects, attractions built on the interaction of virtual objects with real space. Gaming and advertising content both on the territory of the attraction and in any place of the meeting of the target audience to attract more visitors, the ability to quickly and regularly change the content, additional monetization.

Markets	Buyers	Platform usage options
	Art galleries	The platform for the introduction of its own content will allow: Revitalization of paintings, providing additional information about art objects, creating independent street art objects. Attracting more visitors, the ability to quickly and regularly change the content, additional monetization.
	Museums and exhibitions	The platform for the introduction of its own content will allow: provide additional information about museum facilities, create independent objects. Virtual demonstration of objects in archives and stockpiles. Attracting more visitors, the ability to quickly and regularly change the content, additional monetization.
Travel market	Tourist administrations	Delivery of finished projects with subsequent maintenance: reconstruction of lost architectural objects, historical events.
	Navigation services	Automation of the processes of building navigation systems in landscapes with complex terrain in a dynamically changing environment. Providing navigation services with the ability to create AR / VR help systems and hints at an arbitrary point on the surface of the planet. Expanding the types of information provided, additional monetization.
	Travel agencies, guides	Ready-made solutions for creation of interactive excursions: reference information in AR format, bright visual effects, reconstruction historical events and lost historical objects.
Education	Preschool School Higher education Special courses	Creation of modern projects to improve teaching methods for children and adolescents, built on the visual perception of information. Training of specialists of a wide profile with the help of various simulations.

Tab №2 COMPETITIVE ANALYSIS

	VUFORIA	AURASMA	WIKITUDE	FACEBOOK	SNAPCHAT	ARCONA
The maximum distance to capture / hold a mark-er	1,2 м / 3,7 м	0,9 м / 2,7 м	0,8 м / 3 м	?	?	3м /100м
Recognition Stability of a still marker	10	7	6	?	?	10
Recognition Stability of a mobile marker	6	3	4	?	?	7
Minimum recognition angle	30°	35°	40°	?	?	15°
Minimum area of visibility for recognition of an	20%	10%	30%	?	?	25%
2D-recognition	√	√	√	√	√	√
3D-recognition	√	—	√(beta)	√	?	√
Geolocation	—	—	√	?	√	√
Cloud recognition	√	—	√	?	?	√
SLAM	—	—	√	√	?	√
Remote positioning of AR content in an arbitrary location	—	—	—	—	—	√
Automated system for remote generation of georeferenced	—	—	—	—	—	√
Open modular architecture	?	?	?	?	?	√
Social network with AR functions	?	√	√	√	√	√

Tab №3. MARKETPLACE PRICES

COMPANY	PRICES			
Vuforia	**Developer**	**Classic**	**Cloud**	**Pro**
	Up to 1000 cloud recognitions per month	—	Up to 1000 cloud recogni-tions per month	More than 1,000 cloud recognitions per month
	Up to 1000 tags	—	Up to 100 000 tags	More than 100 000 tags
	Free	$499 per one app	$99 per month	Confirmed sales
Wikitude	**Pro**	**Pro3D**	**Cloud**	**Enterprise**
	Geolocation	Geolocation	Geolocation	Geolocation
	Recognition of 2D images	Recognition of 2D images and	Recognition of 2D images and	Recognition of 2D images and
	€2490 in a year per one app	€2990 in a year per one app	€4490 in a year per one app	On request
Kudan	**Development**	**Production License**	**Volume License**	
	2D- and 3D-tracking	2D- and 3D-tracking	2D- and 3D-tracking	—
	Free	£1000 in a year per one app	On request	—
Maxst:	Free	Starter	Pro	Enterprise
	10 tags	500 tags	2000 tags	Unlimited number of tags
	The license for one app	Unlimited number apps	Unlimited number apps	Unlimited number apps
	Free	$50 per month	$150 per month	$400 per month
Xzimg	**Development**		**Professional**	
	Without licensing apps	—	Unlimited licensing apps	—
	Watermarks	—	without watermarks	—
	Free	—	€1600 per license for one user	—
Aurasma	**Free**			**On request license fee**
	Create own AR content in the Aurasma studio or the Aurasma app	—	—	White labeled app or SDK into existing apps

Tab №4. SERVICES OF THE ARCONA MARKETPLACE:

Service
Purchase and sale of arcona tokens at the average exchange rate
Sale of Digital Land from the Arcona® holdings via the auction system (sale of new Digital Land)
P2P market for Digital Land (sale and lease)
Framework for the sale of digital assets: Digital Land, software, system and user content
Providing devkit licenses to software developers and 3D artists
Uploading content into the system
Providing a toolkit to carry out various kinds of transactions for user creations: sales, gifts, issuing licenses for use, etc.
Server capacity
Tech support
Providing software for remotely positioning and managing the AR content
AR Viewer
Providing users with guarantees of copyright for their creations
A service of recommendations for users based on traffic, ratings and community suggestions, choice of publisher
Payment system
Internal messaging service
Various levels of access to tasks
Earning opportunities in exchange for performing various tasks for the system

9. STRATEGIC PLANNING

9.1   THE STRATEGY AND THE BUSINESS MODEL

The company's strategy for 2020 is the merge of real and virtual space in a single AR metaverse easily accessible to the mass consumer who is using the AR gadgets and headsets in his everyday life.

The local users access to the AR metaverse is provided through AR Viewer - freeware software installed in the user's gadgets.

The Digital land owners and content creators access to the WEB client with content management system for remotely launching AR projects anywhere int the world

The company's goal is to monetize the solutions of the Arcona ecosystem.

Ways of monetization:

• Sales of the Digital land as assets on theLand auctions and directly to the users.

• Sales of subscription on the WEB client with tools for landowners

• Sales of subscription to access to WEB client with tools for software developers and content creators.

9.2   MARKETING

1.   Digital land is sold through the auctions in high people traffic areas, such as the square in front of the Eiffel Tower in Paris, Wall Street in New York and so on.

2.   Since August 2018 until April 2019, 5,800 auctions were held in the 10 largest cities of the world, 10,700 parcels were sold to more than 2,000 landowners. There are over 15,000 registered users .

3.   The highest prices at auctions reached sites in New York, Paris and Tokyo.

4.   The Sandboxes will be created in each city where we sell the Digital Land. In the Sandboxes, the system will test various types of content to attract users. The successful tests will be transferred to landowners as a ready to use cases.

5.   A rating system has been introduced for landowners, motivating them to acquire land and actively use it. Used the game mechanics elements.

6.   A number of actions were held that motivated the increase in purchases. The most successful were the "gift for purchase", "find a

good parcel with a gift", the "cash back"... . In the future, shares on the marketplace will be held regularly.

7.   Conducted advertising campaigns in social networks. The cost of attracting a user to Facebook was reduced from $ 20 to $ 6.

8.   In the future, the main efforts to attract users will be directed to content marketing to attract landowners and to conduct their own meetings to attract developers.

9.   The system for selling land between users, a system for selling content and attracting users to their lands will be implemented on the marketplace.

10.   To promote the system, well-known brands from various industries will be invited to pilot projects.

9.3   PRICE POLICY

On the first stage after launching of the ecosystem, the base price of the Digital land is $ 0.25 per square meter and in the future price should be increased till $ 5 per square meter.

The secondary the Digital Land market will set prices for parcels depending on growth of a people traffic in specific location, content attractively and other parameters.

Trade of the Digital land between users will take place on the marketplace in P2P format.

The cost of subscription for landowners is $ 10 per year. Subscription gives the right to use basic services of the system.

The cost of a subscription for developers is $ 90 per year. Subscription gives the right to use full services of the system. The developer also gains access to the ability to sell copyrighted content and software to Arcona Marketplace users.

9.4   PROMOTION CAMPAIGN THROUGH

1.   Digital marketing
2.   Company's website
3.   Social networks

4.   Professional blogs, forums and other on-line resources

5.   Participation in the industry trade shows and conferences

6.   Own hosted conferences and trainings sessions for prospects and customers.

7.   Partner Network of companies involved in creation of all sorts of gadgets for AR technology, from smartphones to AR/VR helmets and lenses.

8.   Professional on-line resources for tourism, education, design, construction and gaming.

10. HISTORY

10.1   OVERVIEW

The Arcona® Augmented Reality Metaverse was developing by Piligrim XXI® team. The Piligrim XXI is an IT start-up operating in the tourism sector of the international augmented reality market since 2014. The company has created the first network of outdoor augmented reality parks: 8 parks in 6 countries with a total area of 777 000 m2.

We have allowed tourists to combine real travel with time travel. Travellers can witness lost architectural wonders and historical events in real time and space by simply using their smartphones.

The service is mass market-oriented and adaptable to all versions of inexpensive AR headsets. Our team has encountered a number of technological challenges while working on this project, such as the geographical positioning of augmented reality objects in real-world locations, tracking technologies and pattern recognition.

We looked at the existing positioning technologies for augmented reality and discovered that none suit our needs. No solution positioned objects in a dynamic, changing outdoor environment correctly. We decided to create our own system for computer vision. 40% of our budget for creating the projects consisted of travel expenses to the locations.

Each project required that our developers travel to the location for mapping, testing and adjustments 3 or 4 times. We decided to focus our system on remote positioning and management of augmented reality objects.

We invested all available funds into R&D. During our work on the project, we attended numerous conferences, exhibitions and other events. There is great interest in our ideas by fellow professionals and potential users.

Without special programming knowledge, each person wanted to change the world around them with a simple set of actions.

This gave us the idea of an ecosystem that would contain all the tools and capabilities required for a broad audience to work daily in an augmented reality environment.

10.2   EXPIRIENS

The review open air AR projects on wide areas

NarvaBattle: Augmented Reality Park | Location: Narva (Estonia) - Ivangorod (Russia). Historical reconstruction the Battle of the Great Northern War between the Swedish castle in the city of Narva and the Russian fortress, in Ivangorod.

Options	Quantity
Historic buildings restored	2
Historical restoration of interiors	-
Characters	8
Character animation	240 seconds
Props	300
Voice recording	5 min. x 4 languages
Music and sounds	2 minutes
Game dev	+
Languages	4
Project cost	EUR 150 000

VR https://youtu.be/EHE8ZmElfw0

AR demo https://youtu.be/UNJvIhITXl0 ,

AR Layout demo https://youtu.be/i-D-IXRYvSg

Pompeyscope: Augmented Reality park | Location: Pompeii, Italy. Outdoor interactive museum with reconstruction ancient people life on of the Forum area of this famous Roman city in its last days and its destruction by the eruption of Vesuvius in 79 AD.

Options	Quantity
Historic buildings restored	14
Historical restoration of interiors	+
Characters	80
Character animation	400 seconds
Props	600
Voice recording	25 min x 4 languages
Music and sounds	2 minutes
Game dev	-
Languages	4
Project cost	EUR 120 000

YouTube: https://youtu.be/p6vqptHRXVU

Old Nessebar: Augmented Reality park | Location: Nessebar, Bulgaria. Outdoor interactive museum with reconstruction ancient people life inside Fortress, city market and cathedrals of the Old Nessebar.

Options	Quantity
Historic buildings restored	5
Historical restoration of interiors	+
Characters	30
Character animation	250 seconds
Props	200
Voice recording	30 min. x 4 languages
Music and sounds	3 minutes
Game dev	-
Languages	4
Project cost	EUR 120 000

YouTube: https://youtu.be/41CR0MOjRRI

Aurora Battleship: Augmented Reality park | Location: Saint Petersburg, Russia. legendary cruiser "Aurora" (1917) in augmented reality (used when the original was away for repairs), also shoot with its entire weaponry

Options	Quantity
Historic buildings restored	1
Historical restoration of interiors	-
Characters	0
Character animation	-
Props	50
Voice recording	10 x 3 languages
Music and sounds	1 minutes
Game dev	-
Languages	3
Project cost	EUR 15 000

YouTube: https://youtu.be/rNwFgConKbs

La Bastille: Augmented Reality park | Location: Paris, France. The visitors of the Bastille square can looks on the events of July, 14, 1879, the tipping point of the French revolution – seizure and bringing down of the Bastille fortress.

Options	Quantity
Historic buildings restored	1
Historical restoration of interiors	-
Characters	0
Character animation	-
Props	50
Voice recording	10 min x 3 languages
Music and sounds	1 minutes
Game dev	-
Languages	3
Project cost	EUR 25 000

YouTube: https://youtu.be/zDymgEhs8cA

YouTube: https://youtu.be/0J8y4gLulc8

**Noble family estate Altun:** Augmented Reality park | Location: Pushkin mountains region, Russia. Rebuilt in AR the complex of unique architectural structures of the early 20th century completely destroyed during the World War II

Options	Quantity
Historic buildings restored	4
Historical restoration of interiors	-
Characters	3
Character animation	+
Props	30
Voice recording	40 min. x 2 lan-guages
Music and sounds	40 minutes
Game dev	-
Languages	2
Project cost	EUR 55 000

YouTube: https://youtu.be/H7pdgnONwTI
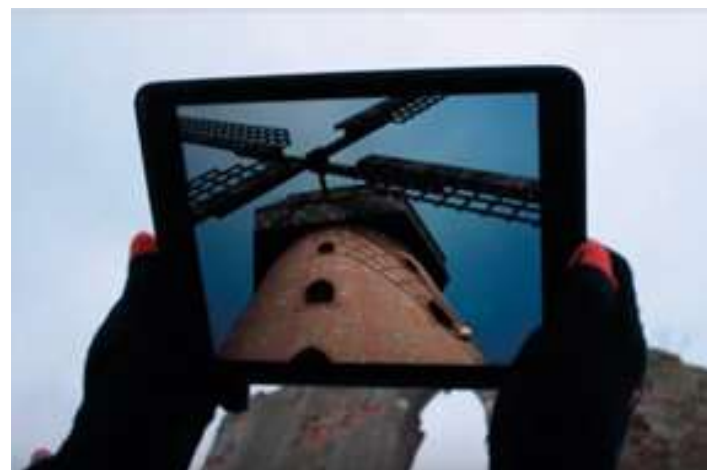
The Ice Road of Life. Augmented Reality park | Location: St. Petersburg, Russia. "The Road of Life" augmented reality application is an integral reconstruction of the defense of St-Petersburg (former Leningrad) during IIWW.

Options	Quantity
Historic buildings restored	6
Historical restoration of interiors	-
Characters	6
Character animation	+
Props	40
Voice recording	20 x 2 lan-guages
Music and sounds	20 minutes
Game dev	-
Languages	2
Project cost	EUR 45 000

YouTube: https://youtu.be/H9zFbiiwYio

World's first outdoor AR park "Ludza Castle". Augmented Reality park | Location:Ludza castle, Latvia 60 000 views during the first year, tourist flow to the site increased by 30%

Options	Quantity
Historic buildings restored	9
Historical restoration of interiors	-
Characters	2
Character animation	-
Props	30
Voice recording	35 x 4 lan-guages
Music and sounds	35
Game dev	-
Languages	4
Project cost	EUR 45 000

YouTube: https://youtu.be/ZmuScb-CtNU?t=130

11.ROAD MAP

2018

The Arcona® team is premiering the technological prototype for creating the Digital land®. Marketplace launched and the Digital land auctions started. Arcona coins into circulation as a system payment means. The Digital land was put on sale with a total area of 1500 km² in the 10 largest metropolitan areas of the planet.

List of cities:
1. Barcelona. The Gothic Quarter. The centre of the old city of Barcelona. Area: 1.4 km2. Population of Barcelona: 1.6 million. Visitors: approx. 4 million tourists every year.

2. London. The City of London. Not just the city district, but the whole city-state. Area: 2.9 km2. Population of London: 8.5 million. London is visited annually by approx. 19 million people.

3. Mexico City. The historical centre of Mexico City, stretching from Constitution Square (Zócalo) to Alameda Central park. On the site of an ancient Aztec settlement. Area: 1 km2. Population of Mexico City: 20.3 million. Foreign tourists: 5.2 million per annum.

4. New York. SoHo. A historical neighbourhood in Lower Manhattan known for being a fashionable, youthful area of the city. Area: 1.14 km2. Population of New York: 8.4 million. Visitors: 12.75 million a year.

5.Paris. 1st arrondissement. The oldest, most famous and elite district of Paris, the centre of the city's tourist scene and commercial life. Area: 1.83 km2. Population of Paris: 2.2 million. Visitors: 18.03 million a year.

6. Beijing. The Forbidden City. The largest and most famous palace complex and the most visited museum in the world. Area: 1 km2. Population of Beijing: 21.5 million. Visitors: over 14 million a year.

7. St. Petersburg. The central district around Palace Square. This is the most popular part of the city for tourists and a UNESCO heritage site. Area: 2 km2. Population of St. Petersburg: 5 million. Visitors: 6.9 million per year.

8. Rome. The districts of Celio and Campitelli. Located on one of the Rome's seven hills, this is the oldest part of the city, and it is where the most famous attractions are located. Area: 1.4 km2. Population of Rome: 2.9 million. Visitors: 7.1 million a year.

9. Istanbul. Sultanahmet district in the old European part of Istanbul. On a promontory between the Golden Horn, Bosphorus and Sea of Marmara, today it is the most popular place for tourism in Turkey. Area: 1.5 km2. Population of Istanbul: 14.8 million. Visitors: 7.1 million a year.

10. Tokyo. Asakusa District. One of the country's main tourist sites. Area: 1.5 km2. Population of Tokyo: 13.4 million. Visitors: 13 million a year.

2019

Launch of the AR Viewer prototype, testing of remote positioning tools.

Running the beta version of AR Viewer with basic functionality.

Placement of basic information content in test locations. Motivating users to use the software to earn tokens. Launching Partner's projects.

Launching P2P part of Arcona marketplace with content focused on involving independent and 3-th party developers and content-creators, promoting and providing legal support to the system, and other tasks to help speed up its development.

The initial content on the marketplace will include the following: Task packages: special packages with Arcona® tasks for developers, 3D artists, lawyers, copywriters, musicians, animators, marketing and PR experts, and other professionals willing to contribute to the project and earn money from our system.

Development kit: open source library-based tools for developers and 3D artists designed to create personal assets for Arcona users.

Original assets: independent solutions created using Arcona DevKit or indie projects to be distributed within the Arcona Ecosystem.

The launch of AR Viewer as and mobile app with monetisation system for testers and scouts to motivate users to use the software and earn the currency in the Arcona metaverse .

Testers will take photos of spatial markers using their devices and send those photos to Arcona. All they will need to do is go for a walk and perform some simple tasks with the AR Viewer turned on.

Users will be able to earn the currency of the Arcona metaverse by simply using the software installed on their mobile devices.

2020

The amount of georeferenced AR territory will increase to 40,000 km2 and the Worldwide Augmented Reality Grid will be created.

2023

Increase the size of georeferenced AR territory to 100,000 km², combining the physical and virtual worlds into one single augmented reality environment.

12. TEAM

Ilia Korguzalov: Founder; Team role: Vision, project conceptualization and management, design and market research. Education: Degree in Economics; 15+ years exp. in business development; Founder of a branding agency and travel magazine.

Diana Sorina: CEO, Founder; Education: Degree in Economics; 12+ years exp. in marketing, branding, sales and PR. Founder of a branding agency and travel magazine. Team role: marketing and sales.

Tatiana Chernih, Founder, Education: Degree in Journalism; 12+ years of experience in journalism and PR. Team role: leading researcher, PR.

Daniel Girdea, Founder, IR 6+ years of experience in working and investing in Real Estate& construction business. Project role: EU branch of the business development.

Dr. Igor Rozhdestvensky, CSO & Founder, Education: PhD in Physics, Theoretical & mathematical; IT and Entrepreneurship, 20+ years experience.

Aleksandr Emilianov: Co-Founder. R&D lead. Education: Computer Science and Engineering (Ph.D): University of West Bohemia, Plzen, Czech Republic. Lomonosov Moscow State University. Russia. 20+ years exp. in: algorithm and software developer, Computer vision.

Aleks Zaulichnyy
CTO

Anton Chernousov
Project manager

Ivan Shabetnik
Head of Marketplace

Alexandr Ermolaev
GIS Developer

Nikolai Kirpan
Computer vision
Developer

Konstantin Zhukov
Computer vision
Engineer

Svetlana Lomp
GIS Developer

Yana Savinikh
2D, 3D CG Artist

13. THE TOKENS OF THE ARCONA ECOSYSTEM

13.1 ECOSYSTEM CURRENCY

ARCONA - Currency. Symbol ARCONA. Decimals: 18
Smart contract: 0x0f71b8de197a1c84d31de0f1fa7926c365f052b3

- ARCONA – 100% Utility token
- Total supply 15,181,707.01308544976911725 ARCONA

DISTRIBUTION OF TOKENS:

- Team - 20% (Vesting: 5% for 6 months, 5% for 12 months and 10% for 18 months after the ICO is finalized)
- Advisors - 7%
- Bounty - 2%
- Reserve Fund - 11%
- For Sale - 60%
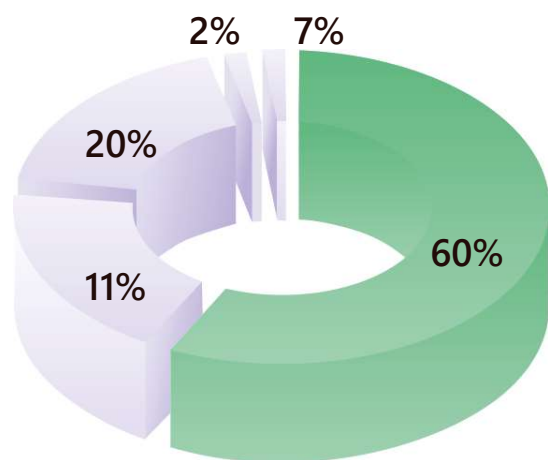
FUND ALLOCATION:

- Software development -22%
- Marketing - 30%
- General and administration - 10%
- Sales - 10%
- Events and exhibitions - 12%
- Partnership project - 10%
- Others - 6%

13.4 ECOSYSTEM ASSETS

The Ecosystem Assets such as digital land and other — for example, content or scripts are nonfungible token ERC 721 standards. Property rights to those assets as well as the conditions and the cost or royalty of their use are recorded in the smart contract.

ARDL - Arcona Digital Land. Symbol ARDL. Decimals: 0
Smart contract: 0xdf5d68d54433661b1e5e90a547237ffb0adf6ec2

14. MEDIA COVERAGE

Cointelegraph Piligrim XXI, the team behind Arcona®, has already amassed five years' experience in AR development.

Forbes "In the St. Petersburg Region, right on the shore of the Ladoga Lake, a full-scalereconstruction of the winter battle on the Road of Life was launched (the application was developed by Piligrim XXI and is used not only in sightseeing programs, but also n school history lessons." [translated from Russian version of Forbes]

Le Monde "The young start-up based in St. Petersburg has developed a mobile application to recreate historic buildings destroyed or in ruins."[translated from French]

Disruptor Daily "But there are an elite few entrepreneurs who have brought to life start-ups thatare poised to change the planet. Without further ado, here are the top 100 most disruptive companies in the world in 2017: Piligrim XXI also offers a new innovation for travellers as well as museums. They use augmented reality to take users back in time to see what their locations used to look like."

Télérama "Piligrim XXI: monuments as you have never seen them."[translated from French]

Augmented-reality.fr "On the occasion of July 14, 2015, Piligrim XXI will unveil its new application. "Bastille" is the reconstitution of the famous fortress of the Bastille." [translated from French]

club-innovation-culture.fr "14 July, 2015: a Russian developer proposes to discover and destroy the Bastille in augmented reality!" [translated from French]

VRGeek "In the next couple of years, the augmented reality will radically change the entire tourism industry. Ilya Korguzalov, co-founder of Piligrim XXI on the latest trends in this market and what interactive adventures are already awaiting the advanced travellers." [translated from Russian]

Lebonbon "Piligrim XXI develops historic augmented reality applications and for the occasion of July 14, its application "Bastille" will be available to rediscover the infamous monument and destroy it!" [translated from French]

Snob "Piligrim XXI reconstructs historical places and events on the screen of your tablet." [translated from Russian]

GeekBrains Piligrim XXI - developer of mobile applications based on augmented reality. This technology allows you to reconstruct on the tablet or smartphone the appearance of lost monuments and past events. Ilya Korguzalov explains us how the project works." [translated from Russian]

RusBase "Piligrim XXI, St. Petersburg start-up, signed the first contract - to create an AR application with the help of which the image of the castle of the Livonian Order, destroyed in the middle of the 17th century, will be recreated in Latvia." [translated from Russian]

Zaitaku-t.net cryptomercadoにICOを立ち上げた提案の中で、拡張現実感のあるものは、ブロックチェーンからそれらをサポートし、商業的視点からの実用的な代替手段として世界を示しているため、大きな注目を集めています。エンターテインメントの側面について この機会に、Arcona®とその拡張現実世界についてお話します。

Complete list of media coverage: http://www.piligrimxxi.com/publisity

More Videos:

http://www.piligrimxxi.com/presskit

https://www.youtube.com/playlist?list=PLpUydsEP3blq8LQkeDRojGdjuYWjiPgmd

15. RISK FACTORS AND SECURITY MEASURES

We understand the concerns that potential investors may have regarding the ARCONA project and its development. You can view our declaration of risks in the following document:

Notice to residents of the United States
Arcona® certifies that, to the best of its knowledge and understanding the offer and offering of these arcona tokens does not constitute an offer and offering of a security or of gambling chips. In case of doubt, be advised that the offer and offering of the arcona tokens has not been registered under the U.S. securities act of 1933, as amended (the "securities act"), or under the securities laws of certain states. These arcona tokens may not be offered, sold or otherwise transferred, pledged or hypothecated except as permitted under the securities act and applicable state securities laws pursuant to an effective registration statement or an exemption therefrom.

Notice to residents of Canada
Arcona® certifies that, to the best of its knowledge and understanding the offer and offering of these arcona tokens does not constitute an offer and offering of a security or of gambling chips. In case of doubt, be advised that unless otherwise permitted under securities legislation, the holder of this arcona token must not trade the arcona token before the date that the issuer becomes a reporting issuer in any province or territory.

Notice to residents of China
Arcona® certifies that, to the best of its knowledge and understanding the offer and offering of these arcona tokens does not constitute an offer and offering of a security or of gambling chips. The arcona tokens are not being offered or sold and may not be offered or sold, directly or indirectly, within the people's republic of china (for such purposes, not including the Hong Kong and Macau special administrative regions and Taiwan), except as permitted by the securities legislation and other laws and regulations of the people's Republic of China.

Notice to residents of the United Kingdom
Arcona® certifies that, to the best of its knowledge and understanding the offer and offering of these arcona tokens does not constitute an offer and offering of a security or of gambling chips. In case of doubt, be advised that in the United Kingdom this document is being distributed only to, and is intended only for (and any investment activity related to it will be engaged in only with):
investment professionals (within the meaning of article 19(5) of the financial services and markets act 2000 (financial promotion) order 2005 as amended (the "FPO")); (II) persons or entities of a kind described in article 49 of the FPO; (III) certified sophisticated investors (within the meaning of article 50(1) of the FPO); and (IV) other persons to whom it may otherwise lawfully be communicated (all such persons together being referred to as "relevant persons"). This document has not been

approved by an authorised person.

Any investment to which this document relates is available only to (and any investment activity related to it will be engaged in only with) relevant persons. This document is intended only for relevant persons and persons who are not relevant persons should not take any action based upon this document and should not rely on it. By receiving and retaining this document that you warrant to the company, its directors, and its officers that you are a relevant person.

ARCONA: Risk Factors and Security Measures

We understand the concerns of our existing and potential investors regarding problems and risks that Arcona® may face during its development. Below, we outline the risk factors :

► Our products are highly technical and may contain undetected software bugs or hardware errors, which might manifest in a way that could seriously harm our reputation and our business.
- These bugs and errors can manifest in any number of ways in our products, including through diminished performance, security vulnerabilities, malfunctions, or even permanently disabled products. We have a practice of rapidly updating our products to fix these bugs. Some errors in our products may be discovered only after a product has been used by users, and may in some cases be detected only under certain circumstances or after extended use.
- Our efforts to protect our users' information may be unsuccessful due to the actions of third parties, software bugs, or other technical malfunctions, employee error or malfeasance etc. In addition, third parties may attempt to fraudulently induce employees or users to disclose information in order to gain access to our data or our users' data. Should any of these events occur, information belonging to us or our users could be accessed or disclosed improperly.

►Unfavorable media coverage could seriously harm our business. If we receive a high degree of media coverage globally, unfavorable publicity regarding, for example, our privacy practices, product changes, product quality, litigation, regulatory activity, or the actions of our partners or users could seriously harm our reputation. Such negative publicity could also adversely affect the size, demographics, engagement, and loyalty of our user base and result in decreased revenue or slower user growth rates, which could seriously harm our business.

- **We may be subject to regulatory investigations and proceedings in the future, which could cause us to incur substantial costs or require us to change our business practices in a way that could seriously harm our business.**
- It is possible that a regulatory inquiry might force us to change our policies or practices. And, were we to violate existing or future regulatory orders or consent decrees, we might incur substantial monetary fines and other penalties that could

- seriously harm our business.
- **We have a short operating history and a new business model, which makes.it difficult to evaluate our prospects and future financial results and increases the risk that we will not be successful.**
- We began commercial operations in 2016 and became profitable in 2017. We have a short operating history and a new business model, which makes it difficult to effectively assess our future prospects. Accordingly, we believe that investors' future perceptions and expectations, which may be idiosyncratic and vary widely, and which we do not control, will affect our token price.
- Our business model is based on the promotion and development of new technologies in the field of augmented reality for real life projects that include advertising, construction, landscaping and tourism.
- The technologies are based on building 3D landscape models via high resolution geospatial data, machine learning algorithms, the blockchain and smart contracts. You should consider our business and prospects in light of the challenges we face, including those discussed in this section.
- We develop and will continue to develop our products and services in partnership with game designers.
- **The loss of one or more of our key personnel, or our failure to attract and retain other highly qualified personnel in the future, could seriously harm our business**

We currently depend on the continued services and performance of our key personnel, including our CEO. As we continue to grow, we cannot guarantee that we will continue to attract the personnel we need to maintain our competitive position. In particular, we intend to hire a significant number of engineers, game designers, IT developers and mathematicians, and we expect to face significant competition in hiring them.

As we mature, the incentives enabling us to attract, retain, and motivate employees provided by our Token Sale gains or by future arrangements, such as cash bonuses, may diminish in effectiveness. If we do not succeed in attracting, hiring, and integrating excellent personnel, or retaining and motivating existing personnel, we may be unable to grow effectively and our business could be seriously harmed.

►We have broad discretion in how we may use the net proceeds from our Token Sale, and we may not use them effectively.

We will use net proceeds that we receive from our Token Sale in accordance with our mission – constantly increasing prediction accuracy to improve the performance of our investment products. Our efforts may be ineffective due to poor management, regulatory investigations, and other problems. We may use a portion of the net proceeds to acquire complementary businesses, products, services, or technologies. We may also spend or invest these proceeds in a way with which our tokenholders disagree. If our management fails to use these funds effectively, our business could be seriously harmed.

►If we are unable to protect our intellectual property, then the value of our brand and other intangible assets may be diminished, and our business may be seriously harmed.
If we need to license or acquire new intellectual property, we may incur substantial costs.

We aim to protect our confidential proprietary information, in part, by entering into confidentiality agreements and invention assignment agreements with all our employees, consultants, advisors, and any third parties who access or contribute to our proprietary know-how, information, or technology.

We also rely on trademark, copyright, patent, trade secret, and domain name protection laws to protect our proprietary rights. We have filed various applications to protect aspects of our intellectual property, which could require significant cash expenditures. However, third parties may knowingly or unknowingly infringe upon or challenge our proprietary rights, and pending and future trademark and patent applications may not be approved. In addition, effective intellectual property protection may not be available in every country in which we operate or intend to operate our business.

In any of these cases, we may be required to expend significant time and funds to prevent infringement or to enforce our rights. Although we have taken measures to protect our proprietary rights, there can be no assurance that others will not offer products or concepts that are substantially similar to ours and compete with our business.

We include opensource software in our products. From time to time, we may face claims from third parties claiming ownership of, or demanding release of, the open-source software or derivative works that we have developed using such software, which could include our proprietary source code, or otherwise seeking to enforce the terms of the applicable open-source license.

These claims could result in litigation and could require us to make our software source code freely available, seek licenses from third parties to continue offering our products for certain uses, or cease offering the products associated with such software unless and until we can re-engineer them to avoid infringement, which may be very costly.

If we are unable to protect our proprietary rights or prevent unauthorized use or appropriation by third parties, the value of our brand and other intangible assets may be diminished, and competitors may be able to more effectively mimic our service and operational methods. Any of these events could seriously harm our business.

ARCONA

AUGMENTED REALITY ECOSYSTEM

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