

ICOrating

SHIVOM Rating Review (<https://shivom.io>)

ICO dates (16.04.2018 – 16.05.2018)



I C O R A T I N G

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1. Rating

We assign the Shivom project a "Stable" rating.

The idea of the Shivom project is to introduce blockchain technology into one of the most promising sectors in the public health market — genomics and precision medicine. Each Shivom platform user will have not only reliable access to scientific knowledge, but can also manage their genome data for their own benefit. Realizing this idea, they argue, is necessary for the health of each individual and of the population of the planet as a whole.

Despite the interesting idea, the platform is currently in development and the alpha version is yet to be released.

Most of the risks are associated with a high likelihood of excess tokens appearing in the market in the medium and long term. When checking OMX tokens and their parameters using Etherscan.io, projects with the same token name, OMX, were found.

In addition to all the risks detailed in the appropriate chapter of this review, it is not clear why the project has so little publicly-available information. We were unable to get a look at the marketing strategy or the business plan. A large number of details directly affecting the success of the ICO, the attractiveness of the token and the development of the project, were not disclosed by the project team for analysis.

The voluminous, challenging-to-read white paper is introductory in nature; it offers specialized terminology and information about the genomics market, but does not contain basic details necessary for an investor to make a decision about participation in the token sale.

The project is "raw" and needs further quality work. We recommend that the developers provide all details and nuances of the token sale, the project's development, financial planning, the platform's expansion, etc. for public access and start interacting with their potential audience.

2. General Information about the Project and ICO

The Shivom project is a decentralized platform designed to create a global ecosystem, including a network of laboratories and research centres, consultants on genetics and a non-profit research organization aiming "to serve underserved countries, and deliver genomics sequencing technology and targeted healthcare".

Platform participants will be able to offer their genomic data for research in exchange for OmiX tokens.

[Website](#)

[Whitepaper](#)

[Github](#)

Smart contract platform: Ethereum Blockchain

Contract Type: ERC20

Token: OmiXToken (OMX)

The total number of issued tokens is 3,000,000,000. There will be no additional issuances.

990 million tokens are allocated to the sale.

Token distribution is as follows:

Tokens belonging to the advisors, founders, plus those in the reserve fund and growth pool will be blocked for 3 years, with a partial yearly unlocking.

Two-thirds of tokens sold in the token Sale will be blocked for a period of 3–6 months, i.e. in the event of a successful token sale with 75,000 ETH worth of tokens sold, at least 50,000 ETH worth of tokens will be blocked.

ICO:

Start Date: April 16, 2018

End Date: May 16, 2018

Price: 1 ETH = 7000 OmiX Tokens

Soft Cap: 15,000 ETH

Hard Cap: 75,000 ETH

Minimum transaction amount: no data

Maximum transaction amount: no data

Accepted currency: ETH

Distribution of funds raised from sales:

- 20% Platform development
- 11% Operations & Business Development
- 21% Marketing & Forming Partnerships
- 5% Legal
- 2,5% Conducting initial sequencing project
- 5.5% Data Storage
- 25% Setting up labs
- 10% Non-profit R&D platform

3. Description of the Services and Scope of the Project

Shivom is a decentralized B2B and B2C platform allowing users to create, store and analyze genomic databases using blockchain technology. One problem to be solved by the Shivom platform is the gathering of genomic data and its exchange between ecosystem users. Utilizing blockchain technology, users have a mechanism to protect their data within the system.

The platform will provide a unique encrypted identifier for each genome, introduced to the blockchain, which in turn is connected to the owner of a DNA sequence. Thus, the problem of redundancy will be solved for all genomic data.

The platform provides its users with:

- protection and control over their data
- the facility to share data for charitable purposes, as well as for the purpose of profit
- access to programs for improving health based on the user data.

The ecosystem will offer an open web market for suppliers and a function for adding applications and services, along with genomic data analytics and personalized medicine.

Uploading data occurs via a user's personal account, where all operations will be performed. The demo version of the platform is currently not functioning. A user can upload their available genome data, or if they have no genome data, they can access a genome sequencing service, then upload the information generated into the system.

Shivom platform components:

The platform operates using smart contracts. As a result, users can safely:

- Store and access all their genome data in one place
- Control who can access to the data, using a filter system
- Manage how researchers, doctors or family members can use said data.

Shivom is based on blockchain technology and may use different options as its basis: HyperledgerFabric, Ethereum, Qtum or other blockchains.

The main components of the platform are:

- Decentralized applications (DApp): Interfaces for communication with the Shivom decentralized platform.
- Ethereum blockchain: the main purpose of Ethereum is management of the tokens using the ERC 20 standard.

- HyperledgerFabric (as one possible option): Contains several elements including smart contracts, storage of metadata and provision of access to genomic data in a decentralized manner.

Shivom is also designed to work with the BigchainBD & Ocean protocol and the Internet of Things Data (IOTA Tangle) protocols to expand user functionality on the ecosystem. MOUs have already been signed.

The Shivom ecosystem may be in demand, as it offers users a wide range of functions based on a modular platform which will connect its components using open standards and open-source tools; this encourages open cooperation between system participants.

4. Market Review

4.1. Market Analysis

According to a World Health Organization (WHO) report entitled «New Perspectives on Global Health Spending for Universal Health Coverage» [1], \$7.3 trln, or about 10% of global GDP was spent on healthcare in 2015. The highest rate was observed in countries with a high level of income, where healthcare costs account for almost 12% of GDP. In countries with a low level of income — an average of 7% of GDP; in countries with an average level of income — 6% of GDP.

Investing in healthcare contributes to the social and political stability of a country, being an important source of real economic growth. It also creates jobs, stimulates technological innovation and improves a country's economic performance.

According to this report, the healthcare segment showed more active growth compared to the overall economy over the past 15 years, and this trend still persists.

One of the fastest growing current trends is known as precision or "exact" medicine. The main objective of precision medicine is to determine which medications will be effective for a patient based on genetic, environmental and biological factors of the disease.

Pharmacogenomics is the study of how genes affect a person's reaction to certain drugs; it is an aspect of precision medicine.

According to a report by Research and Markets [2], the global genomics market will grow with a CAGR of 10.2% from 2017 to 2022 and reach \$23.88 bln in 2022, compared to \$14.71 bln in 2017. Genomics market growth is a result of growing demand for research in genomics, the increase in the number of startup companies, applications of genomic sequencing in diagnostics, personalized medicine, increasing investment, grants and government funds.

Based on another report from Research and Markets [3], we can say that precision medicine will enable an individual approach to treatment to be developed, combining the work of researchers, providers and patients. For example, using this approach scientists have achieved great success in the field of cancer treatment. Patients diagnosed with cancer in 2004 had only a 10% chance of receiving appropriate treatment, compared with a 70-80% current chance; this has been made possible through the use of genetically targeted drugs.

A report by BIS Research [4] titled "Global Precision Medicine Market — Analysis and Forecast, 2017–2026" provides more optimistic forecasts for the development of precision medicine. It states: "It is expected that the oncology market will grow with a CAGR of 10.4% from 2017 to 2026. The increase in the number of cancer cases has significantly increased the global economic burden, this will be about \$4 trln by 2025".

Summing up, there is demonstrable growth in investment in precision medicine. China [5], like the US, is developing this field at the governmental level. Another confirmation of growing interest in the industry is that tech giants such as Amazon and Google [6], are entering the pharmaceutical and biotechnological fields because they believe these areas to be attractive for investment. According to reports by StartUp Health [7] and Rock Health [8], investments in digital medicine increase by 9% annually on average.

4.2. Competitors

Before the rapid development of the number of startups based on blockchain, there were already many biotechnology companies working towards precision medicine (namely the sequencing of biopolymers) in the market. Currently, they still occupy the leading positions and include the following: [23andMe](#), Inc. (USA), [Abbott Laboratories](#) (USA), [AutoGenomics](#), Inc. (USA), [Biocartis NV](#) (Belgium), [BioRad Laboratories](#) (USA), [Cepheid Inc.](#) (USA), [ELITech Group SPA](#) (France), [Illumina, Inc.](#) (USA), [Laboratory Corporation of America Holdings](#) (USA), [Luminex Corporation](#) (USA).

All the above companies (the list is far from complete) provide the following services:

- genome mapping
- genetic analysis of individual predisposition to a number of diseases
- development of specific drugs based on nucleic acids
- improvement of drug therapy, with significant reduction of the likelihood of side effects.

[Shivom](#) plans to take a leading position in these areas, using blockchain technology. This project sets its main goal to be the reduction of costs for such services, expansion of geographical presence, providing access to data technologies for the broader population (patients, pharmaceutical companies, doctors and scientists) and combining all the available databases on human genetics through smart contracts. Transfer of the technology for working with genomes to blockchain will give a new impetus to the development of precision medicine, will accelerate data exchange and make the process more transparent. Pharmaceutical companies who spend billions on medical research and development will gain access to content; doctors will be able to obtain more detailed

information on the health status of their patients, and patients will pay less for what is a currently expensive procedure, and obtain precise solutions to their health problems.

Direct competitors providing similar services to Shivom's already exist. Let us review some of them:

[Gene Blockchain](#) — a project that delivers technologies and software products for sequencing and analyzing genomes. Data obtained as a result of such processing can be used to diagnose pathologies, select appropriate methods of treatment and proper drugs. Gene Blockchain plans to standardize and reduce the costs of genetic research.

[Nebula Genomics](#) — this project promotes storage, transfer, and selling of mapped genetic information using cryptographic blockchain technology. The Nebula Genomics start-up was founded by the famous geneticist George Church, head of the Personal Genome project. This American scientist is known for his work in the field of genome sequencing and interpreting the data acquired, in synthetic biology and genetic engineering. The project enables users to monetize their personal information, bypassing DNA testing companies. Processing big data with neural networks will enable the project to find correlations between DNA information and diseases and will help with the development of drugs. Thanks to blockchain, the cost of genome mapping will drop to \$1000, according to the co-founders of this startup.

[ARNA Genomics](#) — a Russian company working towards the early detection of cancer. It is entering the ICO market with [ARNA Panacea](#), a project built on blockchain technology. According to the authors, ARNA Panacea will become a new platform for interaction between patients, clinics, certified laboratories, pharmaceutical companies, researchers, investors and certification authorities. According to information from the company, the pre-sale was successfully completed with \$883,323 raised, and while the soft cap has not been reached, the company remains in the market.

The following are projects with a similar functionality:

[Bowhead](#) — this project offers a test cartridge, a device for testing, a dispensing device, spherical gels and a mobile app. The platform focuses on the analysis of clients' biometric data for the preparation of personal medications and supplements. Customers can undergo a biometric test in real time using a dispenser and use it to establish personal doses of food supplements. The app will monitor token holders' health, provide open access to expert data and protect health information. In addition, customers will receive rewards for leasing their medical data to organizations. The project team consists of medical doctors, scientists, software and robotics engineers. Information about the

dynamics of the price of the project's token is available at <https://coinmarketcap.com/currencies/bowhead/#charts>.

[MediChain](#) — this project focuses on gathering patient data (medical data), its systematization and selling the data to interested consumers, drug manufacturers and research centers.

The Shivom project has strong competition in the form of pharmaceutical giants including Pfizer, Novartis, Roche Holding, Merck & Co, Sanofi, GlaxoSmithKline, and biotech companies (listed above) who have multibillion-dollar budgets for research and development, years of experience and highly qualified staff, and in some cases, entire research institutes and laboratories. Also, Shivom is not the first blockchain platform operating in this area. Existing projects use and offer the same principles, the same means of motivating participants and similar strategies.

According to information provided in the documentation, the founders state a number of functional advantages that will stand out for the Shivom project compared to other products on the market, namely readiness and compliance with EU Regulation on GDPR (general data protection regulations)¹ coming into force on 25 May 2018; obtaining more data by attracting users and subsidizing this stage, assigning to each genome a unique identifier to be entered in blockchain; this will offer the possibility of preventing duplication of existing results and re-analysis of data. Entering markets in developing and low-income countries, and a business model based on blockchain will enable the project to gain leadership and the trust of its end-users.

We also want to note that many of the above projects are potential partners for Shivom.

¹ https://ec.europa.eu/info/law/law-topic/data-protection_en

Declared functional advantages of the Shivom ecosystem

										
Decentralized Storage	✓	✗	✓	✗	✗	✗	✗	✓	✓	✓
'Privacy by Design' Privacy Layer	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
Secure Computing	✓	✗	✓	✗	✗	✗	✗	✗	?	✗
Multi-Omics	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
Whole Genome Sequencing	✓	✗	✓	✗	✗	✗	✓	✗	✓	✗
Patient Recruitment (Buyer to User Interaction)	✓	✗	✓	✗	✗	✗	✗	?	✗	✗
Healthcare Ecosystem (3 rd party Services)	✓	✗	✓	✗	✓	✗	✗	✗	?	✗
Unique Global ID	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
Subsidized Sequencing	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗
Not-for-profit R&D	✓	✗	✗	✗	✗	✗	✗	✗	?	✗
Data owners can monetize their data	✓	✗	✓	✗	✗	✓	✗	✓	✓	✓
Artificial Intelligence	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓
Only uploader owns data	✓	✗	✓	✗	✗	?	✗	✓	✓	✓
Global Platform	✓	✗	?	✓	✗	✗	✗	✓	✗	✓

5. Team and Stakeholders

The Shivom team consists of 6 founders and 11 team members.

[Axel Schumacher](#). **Co-Founder and CEO.**

Since 2017 he has been a faculty member of the Blockchain Research Institute in Toronto, working on healthcare in blockchain. Between 2014–2016 he worked as global marketing manager and precision medicine expert for Genedata, where he created a new platform for the top 25 pharmaceutical companies. Previously he worked as a manager of the Blood Donor Biobank, at that time the largest biobank in the world, where he successfully helped to create a new product, PlasmaRef Panels, for the diagnostics and pharmaceutical industry. He was a co-founder and manager of the BioKEP company, and group leader for Alzheimer Epigenetics and manager of the genomics facility of the Klinikum Rechts der Isar, Germany's top ranked clinic, and built several laboratories in Germany and Canada. Axel worked as project manager for the Centre for Addiction and Mental Health (CAMH) and is the inventor of epigenetic microarray technology.

He graduated from the University of Cologne majoring in Epigenetics and Medical genetics.

Axel is the author of over 30 highly cited publications²; he holds 8 certificates and 3 patents.

[Gourish Singla](#). **Co-founder and COO.**

Gourish has worked as COO for Shivom for more than a year. Previously he worked as a director for Kusum Chemicals for over 6 years. Kusum Chemicals is the largest importer and distributor of PVC chemicals in North India.

[SALLY EAVES](#). **Co-founder and CMO.**

Sally is an official member of the Forbes Technology Council. Currently she is a senior advisor on strategy to Nuggets, a platform for e-commerce. Since 2016 she has been CEO and director of the Sally Eaves Consultancy. Concurrently Sally is also CTO of Mind Fit, CIO of Intrapreneur International Ltd. and director of global education at the British Young Asian Entrepreneurs Association.

² <http://s617071866.online.de/publications>

PER LIND. Co-founder and CSO.

Per is a co-founder of the IOTA foundation. He is a partner of ASEAN and APAC, assisting such companies as HYPR Biometric Security, Apptivo, Opinator, Secunia, Falcon.io and iMotions. Per has been vice-president of business development for more than 11 years at MyCosmic, a company that provides international roaming for smartphones. For more than 19 years he has been director of Farmor Cloud Factory Co. Ltd., a consulting company for the sales and marketing of hardware and software.

Akash Gaurav. Co-founder and CTO.

Akash is the founder of the Auxledger Foundation, Blockchain Lab, India. CEO at Auxesis Group, an innovative company with advanced expertise in fintech and blockchain technology. Auxesis has been consistently ranked in the top 100 blockchain companies in the world. He works as a blockchain network advisor to Cashaa. Mr. Gaurav has participated in 10 projects such as MEMS Department Drupal Website, Restructured & Revamped, Eureka!, Asia's largest b-model competition, and founded and developed FCOF, E-Cell IITB, etc.

Titles and awards: Institute Technical Special Mention, Merit Scholarship, Merit Award & Scholarship.

Kumar Gaurav. Co-Founder and Chief Technology Advisor.

Kumar is the founder of Cashaa, a banking platform that enables making deals with millions of people. He is currently the chairman of the Auxesis Group. He is also an advisor to Satoshi Studios. Previously he was co-founder of the DarWinsurance insurance platform and the BTC2BID Bitcoin exchange platform.

Certificates

- Microsoft certified .NET Professional (MCP)
- Sun Certified JAVA Programmer (SCJP 6)

The team is the strongest aspect of this project. We highlight the co-founder, Axel Schumacher, who is a notable professional in the field of precision medicine, particularly genetics. Equally important is the experience of the other co-founders responsible for technical issues, marketing, and strategic development of the ecosystem. Other team members with relevant expertise are also responsible for these areas.

The co-founders and various members of the team are advisors to and founders of other projects and currently occupy different positions at other companies, which is of course proof of their experience and professionalism, but the question is whether they would be able to pay due attention to the Shivom project while combining work in several positions and responsibilities for other companies.

6. Token Analysis

The project has a page on GitHub which has two repositories [9]; however, at the time of writing there were no public repositories for smart contracts.

According to information in the white paper, OmiX (OMX) is an ERC20-standard Ethereum blockchain utility token, intended for the purchase of goods and services within the platform and to be used as a means to reward participants for various actions such as:

- participation in research and surveys
- creating articles, reviews and video content
- attracting other users to the platform
- filling in medical forms, etc.

Main uses of tokens for individuals and organizations in the Shivom ecosystem are as follows:

Users	Organizations
<ul style="list-style-type: none">• Purchase of genome sequencing kits• Access to health/fitness apps from 3rd party providers · Purchase of health insurance• Redeem for health-related products (partner pharmacy or online shop)• Buy other 'omics' kits (e.g. get your metabolome, transcriptome, microbiome, or epigenome tested)	<ul style="list-style-type: none">• Sponsor sequencing projects• Access the genome database and analytics• Pay donors for data and participation in research studies• Upload sequences to the ecosystem• Obtain secure cloud storage space for 'omics' data• Support rare disease projects• Find participants for research studies• Optimize patient stratification in clinical trials• Add apps and services to the platform• Store proprietary DNA sequences for tamper-proof IP protection

<ul style="list-style-type: none">• Obtain your ancestry or genealogical profile• Analyze information on your pharmacogenetic profile (which drugs work for you and which do not)• Get personalized lifestyle, diet, and nutraceuticals advice• Understand evidence-based information on susceptibility to diseases and associated therapies	
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According to the documentation, the Shivom platform will provide its services in various countries; participants can make fast and reliable payments from anywhere in the world. The OmiX Token provides such a possibility, which we think justifies its use in the ecosystem.

7. Analysis of Factors Affecting the Future Value of the Token

As already mentioned, the OmiX token is infrastructural in nature and is the internal currency for the Shivom platform; therefore for its attractiveness to grow it is necessary to create turnover on the platform between service providers and end users. The developers intend to create the largest global genomic ecosystem, seizing more than 51% of the genomic market. Such ambitious plans will require extensive global marketing to introduce the platform to the widest public possible; it must have not only material benefits for end users but also an educational component that explains the need to participate in the ecosystem. The Shivom ecosystem and its forthcoming ICO are gaining popularity, as evidenced by activity on social media; the number of participants in some channels exceeds 60,000.

Moreover, the expansion of the ecosystem will most likely commence after the launch of a full version of the platform; based on the roadmap, this will not happen until Q3/Q4 2018. Therefore, OMX's utility functions will not be in demand in the short term.

To keep a balance between a low demand for tokens before platform launch, and the supply of tokens after listing on exchanges in the short term, the developers have provided a freezing period for two thirds of the total number of tokens sold, after the end of the sale. Tokens will be locked for a period of 3–6 months; the developers have not disclosed any more detailed information. If investors' tokens are unlocked after the end of this stated period and demand for them does not increase, if the fully operational platform is not launched, this will lead to oversupply and the price of the token will fall.

The upcoming release of the platform and planned cooperation with partners including major analytical companies, medical centers and pharmaceutical companies will serve as the driver of token price growth in the medium term. However, the documentation provides no details about upcoming partnerships, the stage of negotiations or other relevant factors.

The founders have allocated 64% of the total number of issued tokens to early investors and advisors, a growth pool, a reserve fund and the team. Only 33% are allocated to the token sale. The founders do not give specifics on the conditions of freezing and unfreezing tokens in a separate segment, but according to the developers the lockup period will last 1.5 – 3 years. Accordingly in the long term, this amount of tokens, exceeding the amount allocated to the crowdsale by almost twice, will affect token price significantly.

8. Investment Risk Analysis

Having analyzed the Shivom project we identify a number of significant risks that could affect the survival of the product and the attractiveness of the OMX token.

Token price growth is at risk from the unlocking of tokens belonging to the team, the advisors, the reserve fund and the growth pool. The team does not provide exact conditions for listing the unlocked tokens; these tokens will sooner or later be on the market.

After the end of the ICO, the team will block most of the tokens; this is a risk to the success of the token sale, because not every investor will wish to invest in a project and be unable to use their purchased tokens for a period of up to six months.

The reserve fund comprises 20% of the total number of issued tokens intended for sale to large investors. This is similar to an additional issue, and will directly affect the token's quote. The upcoming sales' parameters were not provided, nor the plans for distribution of the funds raised.

The lack of a working platform will also impact the token, as there will be an infrastructural lack of demand. There are also no guarantees that the platform will develop according to stages of the roadmap, and one cannot be sure that the developers will not postpone its release indefinitely, as has happened with the planning of the ICO.

In connection with the lack of a provided marketing strategy and consequent inability to provide a marketing analysis, it remains unclear how the project's optimistic plans to attract so many system participants be implemented, and thus how the platform will achieve its intended global number one status. In our opinion, such expectations are clearly too high; the existence of serious competitors is further evidence of this, especially since the project does not have a set of distinct advantages over these competitors.

The absence of any financial indicators, of platform service pricing, projections, a lack of sources of income or expenditure for the project and information on the time period for distributing funds raised during the token sale prevent us estimating the future viability of the project.

And finally, we must point out the fact that a token with the same name exists; OMX belongs to another project and is visible on the etherscan.io site. This could mislead potential investors who could accidentally purchase tokens from another project. If investors encounter such a situation, this will create distrust, questions and

misunderstandings. All these factors have to be considered in the course of any investment decision-making.

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- [1]http://www.who.int/health_financing/topics/resource-tracking/new-perspectives/en/
 - [2]<https://www.researchandmarkets.com/reports/4410325/genomics-market-by-product-and-services>
 - [3]<https://www.researchandmarkets.com/reports/4387278/global-precision-medicine-market-growth-trends#rela4>
 - [4]<https://bisresearch.com/industry-report/global-precision-medicine-market-2026.html>
 - [5]<http://medical-science.ru/?p=6464>
 - [6]<https://www.pharma-iq.com/pre-clinical-discovery-and-development/articles/top-10-pharma-and-biotech-trends-to-watch-in-2018?mac=PMIQ>
 - [7]https://www.slideshare.net/StartupHealth/startup-health-insights-funding-report-q1-2017?next_slideshow=1
 - [8]<https://rockhealth.com/reports/2017-midyear-funding-review-a-record-breaking-first-half/>
 - [9]<https://github.com/shivom-io>
 - [10]<https://etherscan.io/token/0x57b98bddb12d2f1a130b130c45fb5a857e6e36ea>

The information contained in the document is for informational purposes only. The views expressed in this document are solely personal stance of the ICOrating Team, based on data from open access and information that developers provided to the team through Skype, email or other means of communication.

Our goal is to increase the transparency and reliability of the young ICO market and to minimize the risk of fraud.

We appreciate feedback with constructive comments, suggestions and ideas on how to make the analysis more comprehensive and informative.