

CCART



White Paper v.1.8

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Executive summary

What's the value of COART? Who are the target Audience?

COART lowers the barriers for retail investors to invest in art assets using co-investment. Currently, investment in high-end artworks (valued at \$1 M and above) are prohibitively high amount, so only wealthy collectors, family offices, and investment funds can afford to do so.

COART proposes a special mechanism using blockchain technology that lowers the barriers to entry for retail investors and traders who have an interest in investing in art, but at lower capital entry requirements. Moreover, COART represents something else, something broader.

Participants of the Art market know that the existing system objectively does not correspond to the present needs, it is not transparent and too enclosed, what makes access to the art market difficult for the new artists and those who are interested in investing in art-assets. We are going to create the new and equal opportunities for all participants of the Art market, from artists to investors.

We are building a new specialized Collaborative Art (**COART**) blockchain infrastructure, a platform for launching hundreds of new projects in all segments of the Art market.

Artists and art dealers who represent them will have a direct access to the global art market for self-sale of their works, or will be able to raise funds for the creation of new works.

Gallery owners and museums will get a new way to raise funds for their needs, it will be much more convenient when compared to all the existing opportunities.

Auction houses and investment Art Funds will receive new customers – retail investors and traders, to whom direct access to the art market will be provided by COART.

In fact, all participants of the Art market are the Target Audience of COART.

How can we do it and why do we need blockchain for it?

The COART ecosystem based on EOSIO software has its own system token called BID.

Provenance distributed ledger, containing all known data on the history of ownership and exposure of specific art objects, decentralized art-original and digital-original data distributed storage, security tokens of art assets (ART-ASSET tokens), integrated payment subsystem, special ART-ASSET tokens exchange, stable/tethered coin mechanics and liquidity provider subsystem creating easy entry point for all the different art market stakeholders are also going to be implemented on EOSIO software.

BID token (COART system token) will allow access to all payment and infrastructure utilities of the COART ecosystem. The BID token uses smart-contracts to keep a trustless system in place, allowing exchange of rights to different artworks by investors and sale of artworks.

We make it essentially easier to buy art, trade art and sell art (without the liquidity problem of having to wait for the artwork to go to auction a second time and the provenance problem of tracing the artwork's origins).

This is why we use blockchain technology for identification and tokenization of art-assets as means of investment and trade.

General Art market overview

Market size

According to "H1 2018 – Global Art Market Report"¹ all the economic indicators are positive:

1. Global auction turnover on Fine Art² rose 18%, totalling \$8.45 B
2. Transactions remained stable with 262,000 lots sold, up 2.5% vs. H1 2017
3. The USA posted a massive 48% increase, with total turnover of \$3.3 B
4. China³, with \$2 B in turnover, reduced its unsold rate before a decisive H2
5. The UK is just behind China with auction turnover up 18% to \$1.9 B,
6. The EU is contributing to growth: France +8%, Germany +17%, Italy +22%
7. Modern Art, the high-end market mainstay, accounted for 46% of total turnover
8. Modigliani and Picasso both generated results above the \$100 M threshold
9. Zao Wou-Ki was China's best-performer in H1 2018 with turnover of \$155 M
10. Contemporary Art's global price index rose 27%, rivalling the S&P 500

Global Fine Art auction turnover amounted to \$8.45 B in H1 2018, an increase of 18% versus the year earlier period. The Art market is therefore pursuing the renewed growth which started in H1 2017 (+9%) and was confirmed in H2 2017 (+32%).

Compared with the financial crisis in 2008 – and its repercussions on art prices the following year – the Art Market appears to have considerably matured and is now enjoying a new form of stability and independence. This stability is based on a very large volume of transactions: over 250,000 lots auctioned each semester, effectively constituting a solid basis for the International Art market.

The annual differences we observe in total global auction turnover from Fine Art are essentially generated by a limited number of top-bracket lots which constitute only a fraction of the number of transactions: results above the \$5 M threshold represent

less than 0.1% of the transactions, but generate 40% of the turnover. This high-end market depends more than any other on the level of confidence within the market, as well as the general economic context. In fact, judging by the 229 works which sold above the \$5 M threshold in H1 2018, the market perceives the current economic situation as particularly favorable: in H1 2017 the number was only 163.

The ultra-high-end market, i.e. a handful of extremely rare works (> \$100 M) that are usually offered for sale in extraordinary circumstances, now also has an impact on global annual turnover totals.

The \$450 M paid by the Emirate of Abu-Dhabi for Leonardo da Vinci's *Salvator Mundi* masterpiece last November, alone accounted for 3% of 2017's total global auction turnover from Fine Art.

1 [H1 2018 Global Art Market Report, Artprice](#)

2 *Fine Art Public Auction: painting, sculpture, drawing, photography, prints, installation*

3 *In collaboration with the Art Market Monitor of Artron (AMMA)*

Investing into Fine Art

Nowadays the main buyers of the top segment art objects are super-rich collectors or Funds and family offices. This is not a small but still limited circle of people, and auction houses are well aware of their customers and spend a lot of time dealing with them directly.

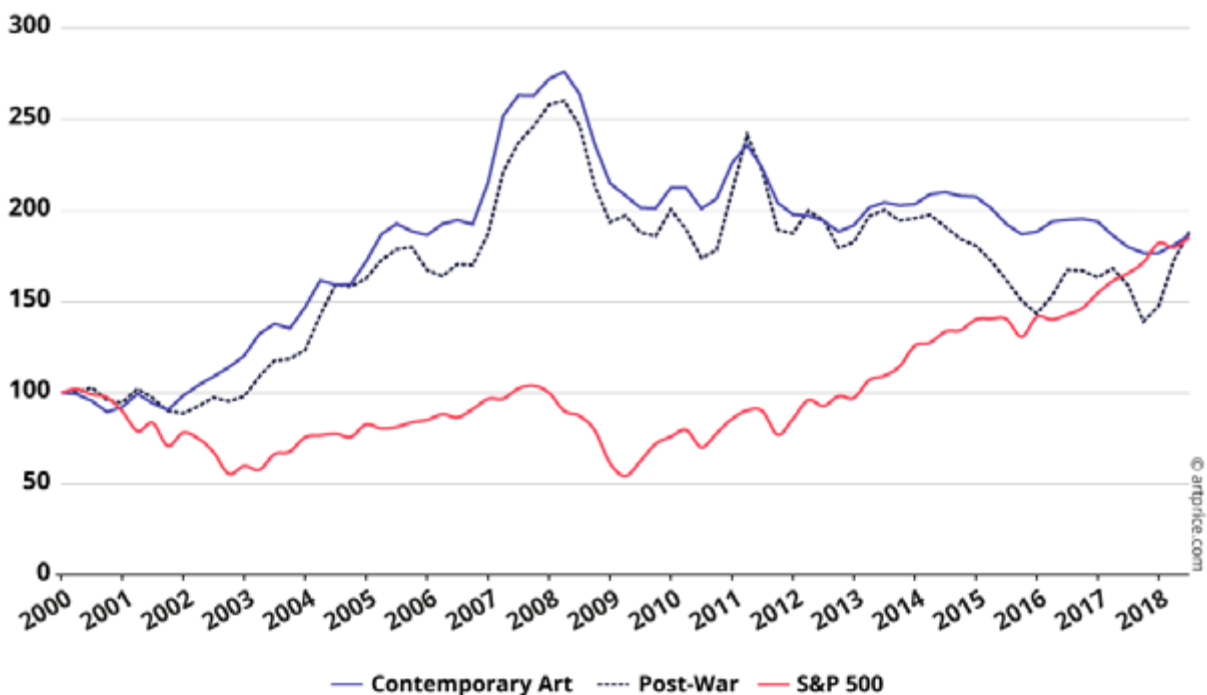
At the same time, statistics show that more than 90% of high level art assets (worth from \$0,5 M and above) are purchased for investment purposes.

Post-War Art and Contemporary Art are the two segments that show the strongest prices increases over the short, medium and longer terms.

These two periods of creation enjoy exponential demand which the supply is able to follow. In contrast, the other periods of creation are suffering from a gradual dilution of prices: as the major top-quality works become increasingly rare, the overall quality of the works available inevitably tends to diminish.

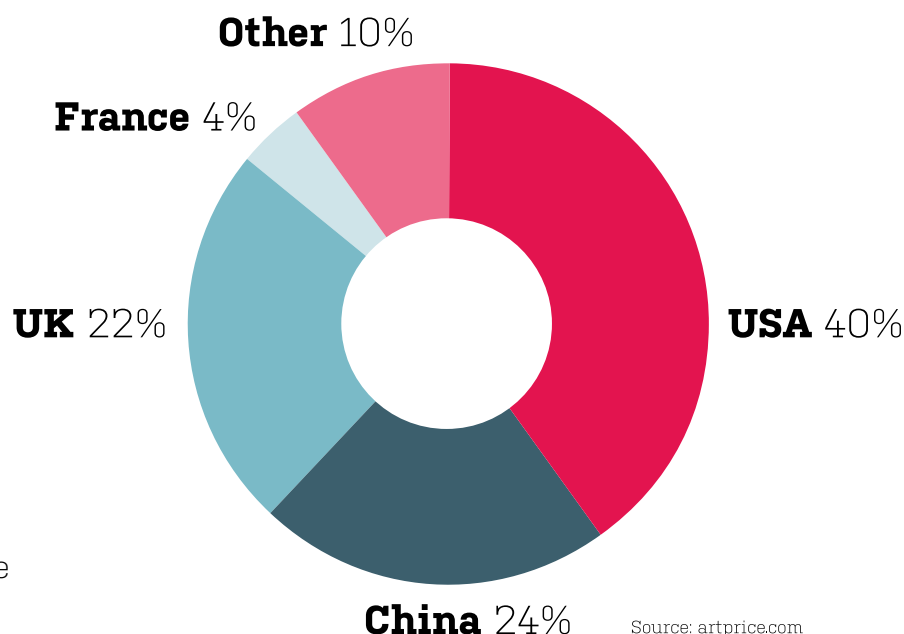
Meanwhile, Artprice's overall index for Contemporary Art shows a remarkable progression of +27% for the first half of 2018¹. This performance is driven by the extremely rapid price evolutions enjoyed by a number of artists active today, including the Americans Kerry James Marshall, Mark Bradford and George Condo. The latter's work is now appearing in auction sales and fetching very impressive results. On 17 May 2017, Christie's New York presented Condo's *Nude and Forms* (2014) for its first ever auction appearance; the work fetched over \$6 M.

In the longer term, Contemporary Art and Post-War Art are honourable rivals of financial markets. Since 2000, the indices of these two periods have posted an overall gain equal to that of the S&P 500.



1 [H1 2018 Global Art Market Report, Artprice](#)

H1 2018
Geographical
distribution of the
Art market



The USA leads again thanks to Modern Art. With its extremely dynamic market and unmatched high-end offer, New York was by far the leading marketplace in the global Art market in H1 2018. Posting a total turnover growth of +48%, the American market generated for \$3.3 B in auction turnover in H1 2018. Representing 40% of the total value of the world's Fine Art auction turnover in H1 2018, this figure brings the United States back into first place on the global Art market.

London capable of competing with New York. After an uncertain year 2016, the English Art market no longer seems weakened by the Brexit process and is once again demonstrating excellent health. The United Kingdom looks set for a second consecutive year of growth: its Fine Art auction total already stands at \$1.9 B for the first half, compared with \$2.5 B for full-year 2017.

China: the soft power battle with the US intensifies. With a total turnover of \$2 B, China (Hong Kong and Taiwan included) remains in second position in the global ranking of the world's major marketplaces. The best result was hammered by Poly in Hong Kong for a painting by the abstract painter Zao Wou-Ki, *Et la terre était sans forme* (1956-1957), which fetched \$23.3 M.

Co-investment into Fine Art and tokenization of the art-assets

The idea of fractionating rights of an expensive artwork to allow retail investment is considered by multiple blockchain startups at the moment.

This has been attempted before, but without the blockchain technology several projects failed because they could not solve the problems of provenance, transparency, and liquidity. The point of blockchain is to solve provenance and transparency issues, while not having to wait for the artwork to go on sale for a second time (a liquidity problem).

Of course, we are following the trend and we maintain contacts with projects involved in the global transformation of the Art market. Most of them are already using blockchain, some of them have just announced their plans to introduce blockchain technology into already existing models.

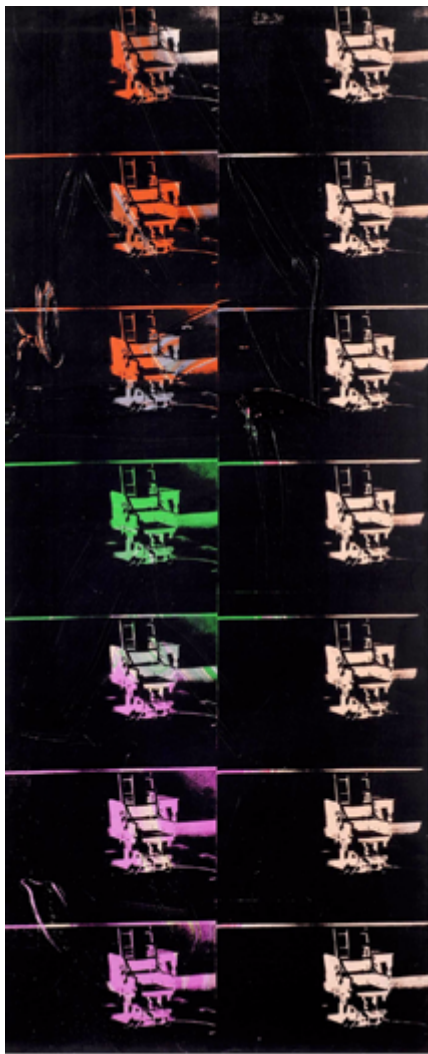
Together we are participating in the transformation of the Art market in order to create a new communication sphere which solves the problems of provenance, transparency and liquidity in the Fine Art industry and lowers the barriers to entry for the new artists, art lovers, retail investors and other participants of the Art market. But unlike most of the existing projects that are still running or claiming to be launched on the Ethereum, we are creating totally new ecosystem based on EOSIO.



Last spring "Buste de mousquetaire" by Picasso that you can see on this page was divided into 40,000 shares purchased by 25,000 buyers within three days.¹

One of the Swiss websites did this as an advertising action and the picture itself was happily welcomed into exposition at Geneva's modern art museum. It is important that no information on how the new owners of the "Picasso shares" can dispose of them, sell or donate was not announced.

Most buyers bought shares just to "have a piece of Picasso".



Another good example is the online auction held by Maecenas, which was completed in September, on the platform of which 49% of Warhol's painting "14 Small Electric Chairs", which belonged to the London gallery DADIANI, sold on Maecenas art investment platform built on blockchain (beta launch). This is the first time that a high level artwork has been tokenized and sold.¹

The next example of the successful sale of high-level artwork as a digital shares will probably be the start of trading of the American company Masterworks, which already accepts preliminary applications for the purchase of two works by Andy Warhol and Claude Monet, now owned by the Masterworks.²

Unlike these remarkable projects, COART not only changes the art investment sector and innovates access for small and medium-sized investors, but also provides new and equal opportunities to all participants of the Art market from artists and art experts to retail investors and traders.

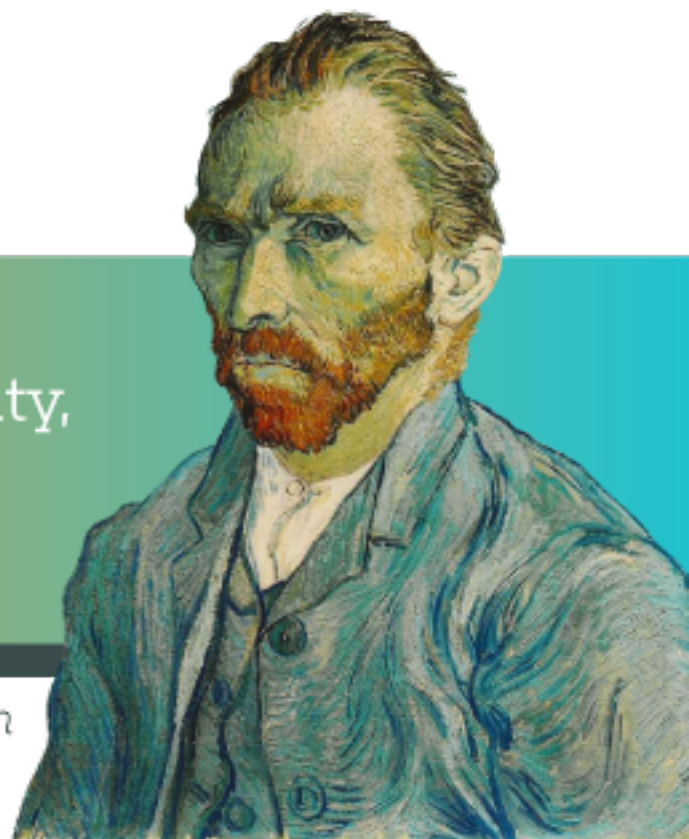
1 <https://blog.maecenas.co/blockchain-art-auction-andy-warhol>

2 <https://www.masterworks.io/>



For my part I know nothing with any certainty, but the sight of the stars makes me dream.

- Vincent Van Gogh



Problems of the Art market and how do we solve them

High transaction costs

Speaking about transparency, the art market is in a gray zone. Many transactions are done privately.

It means that the potential for fraud is really high for an investor.

There's also an issue of how one single artwork may be sold to multiple buyers, thereby causing long judicial processes to determine who owns the rights to the artwork. There are many middlemen and "brokers in" between buyers and sellers in the fine art industry. Each of these intermediaries carries their own fees for transactions.

In the modern market, there are very few assets that retail investors can invest in. Forex, crowdfunding and similar platforms have allowed retail investors to invest in assets previously accessible only to hedge funds, accredited investors, banks, etc.

The average investor can now afford investment into high-level artworks through COART ecosystem. From the retail investor's perspective, high-level artworks are an exception to the rule.

We sure we can reduce the amount of transactions and associated fees using blockchain technology and smart contracts.

Counterfeits and the state of art expertise

Even experienced collectors and experts of leading auction houses usually make mistakes, buying or exhibiting fakes for sale. The sphere of art expertise today is an archaic, closed system, based on the

personal opinions of a small number of the old experts, whose opinion is often manipulated by manufacturers or owners of fake works.

The complexity of solving the designated tasks

In late March 2018, a judge in Wiesbaden, Germany, found herself playing the uncomfortable role of art critic. On trial before her were two men accused of forging paintings by artists including Kazimir Malevich and Wassily Kandinsky, whose angular, abstract compositions can now go for eight-figure prices. The case had been in progress for three and a half years and was seen by many as a test.

But as the trial reached its climax, it disintegrated into farce. One witness, arguably the world's leading Malevich authority, argued that the paintings were unquestionably fakes. Another witness, whose credentials were equally impeccable, swore that they were authentic.

The judge was unimpressed. "Ask 10 different art historians the same question and you get 10 different answers," she told *The New York Times*¹.

Needless to say, this frightens off many of those who would like to invest in the top segment of the Art market. This is actual especially for the young people, who can get a better ROI in comparison with the traditional investment options everyone has. In their opinion would be great to own a percentage of a piece of art. Moreover, if this is a genuine and unique artwork that has entered into the cultural heritage of Mankind, and which forms an integral part of it.

1 [*The New York Times* \(April 6, 2018\) "Unknown or Unreal? The Shadow on Some Russian Avant-Garde Art"](#)

Renaissance 2.0

Non-profit mission of COART

In addition to utilitarian goals, COART is about a number of important public and cultural tasks, united in the Not-profit Organization "Renaissance 2.0", goals of which are undoubtedly global.

One of them is the creation of a blockchain archive-catalog of the entire cultural Mankind Heritage. The results of 3D scanning, spectrographic analysis and other methods of identification and confirmation of the authenticity of art objects, including the methods currently being developed using AI and deep neural networks, will be included in the COART distributed storage subsystem that will resolve the issue of authentication forever, excluding the possibility of falsification of these works, as well as create the opportunity to reproduce important art objects of the cultural code of Mankind on the way to mastering new worlds.

For example, in the colonies of Mars or Titan the masterpieces of Leonardo da Vinci, Rubens, Malevich and other geniuses can be reproduced. And they will be identical to the originals in everything, except the age, and possibly the composition of the materials used.

The second main objective of the Renaissance 2.0 program can be called the search and return to the Art sphere of lost artifacts, often accidentally found in flea markets, or attics of old houses. Using the same tools for identifying art objects, we can initiate a real "wave of searching for lost treasures." Armed with their smartphones, young enthusiasts

will go searching for lost masterpieces in "grandmother's cabinets" and this game will be more exciting than trying to catch a rare Pokemon, after all, prizes in this "treasure hunt" can cost tens and hundreds of thousands of dollars.

The third of the most important tasks of this non-profit organization can be the return of European cultural values, scattered now in the closed collections of different corners of the World, in the exposition of European museums.

After all, the main task of museums is not to own works of art, but to exhibit them, providing comfortable and safe access to masterpieces for art lovers around the world who come to European cities to visit famous European museums.

Using the mechanisms laid down in the COART infrastructure solution at the code level, we can help not only in returning the cultural values of Europe to the open expositions of European museums, but also help to ensure that the museums will no longer depend on direct state subsidies and will finally find true freedom to form their collections including the works of contemporary artists.

Of course, the same opportunities can be used for the return of cultural property lost in previous centuries for various reasons in any other countries. For example, in China, where the national culture of the imperial dynasties is undergoing its own Renaissance.

Art and Artificial Intelligence

We are convinced that Artificial Intelligence will play the most important role in the purification of the cultural Mankind Heritage from fakes and in the search for the lost treasures of the World Culture.

Several groups of scientists and developers in different countries are working on creating a reliable system for identifying art objects. Including projects such as:

- **Magnus**¹ – an app based on the computer vision technology. The AI helps to compile the prices of the artworks through crowdsourcing buyer's information within the framework of this app.
- **Artfinder**² – the art marketplace using functional of the AI-curator called Emma. This curator was created with the use of the same facial recognition technology that police forces use to identify criminals on CCTV.
- **Sotheby's** is going to create a project with an artificial intelligence start-up that specialises in image recognition and recommendation technologies (**Thread Genius**).³

But the most promising project, in our opinion, is the one created by researchers from **Rutgers University** and the **Atelier for Restoration & Research of Paintings** from Netherlands.⁴ Their system broke down almost 300 line drawings by Picasso, Matisse, Modigliani and other famous artists into 80,000 individual strokes. Then a deep recurrent neural network (RNN) learned what features in the strokes were important to identify the artist.

Every single gesture – shape, curvature, the velocity with which a brush- or pencil-stroke is applied-reveals something

about the artist who made it. Together, they form a telltale fingerprint. Analyze enough works and build up a database, and the idea that you can find every artist's fingerprint becomes real. In this case, it is not needed to subject works to lengthy and expensive materials analysis, hoping a forger has made a tiny slip; the new technique is so powerful that it doesn't even need access to the original work. A high quality digital picture will be enough.

The researchers also trained a machine-learning algorithm to look for specific features, like the shape of the line in a stroke. This gave them two different techniques to detect forgeries, and the combined method proved to be powerful. With both algorithms working in tandem, researchers were able to correctly identify artists around 80 percent of the time.

AI is also being used to create works of art. In 2017 already mentioned experts in the Artificial Intelligence Laboratory at Rutgers University in New Jersey created CANs (Creative Adversarial Networks) that allow for AI to create physical works that appear to be human-crafted. Machines now have their own concept of aesthetics, sense of perception and their own creativity, with AI connecting technology and fine art like never before. The introduction of GANs (Generative Adversarial Network) and cGANs (Conditional Adversarial Network) are changing the way artists can create work.⁵

We will initiate the creation of **COART Non-profit Organization** for collaboration and technological integration with such projects, as a company providing technological solutions for the marking and identification of the art objects, including the creation of a new type of expert community using AI.

1 <https://magnus.com>

2 <https://www.artfinder.com/> *The Telegraph* Matthew Caines. *Bringing artificial intelligence to the art world.*
3 *Gabriella Angeletti. The Art Newspaper* (25.01.2018). *Sotheby's acquires tech startup Thread Genius.*

4 <https://arxiv.org/pdf/1711.03536.pdf>

5 <https://www.artmarket.guru/le-journal/market/ai-creating-new-genre/> 17.08.2018

This Organization can become the basis for creating a global Association of technology developers in the areas of AI, deep neural networks and machine learning, interested in applying their developments to preserve and enhance the cultural Heritage.

We hope that the European Parliament will be the first to support the creation of such an Association, and after that other governmental and public organizations of the world will join this process.

Collaboration with world museums

We are going to exclusively offer museums to include in their expositions those high-level art objects that tens of thousands of retail investors will purchase using co-investment mechanisms offered by COART Investment Art-fund and other funds and organizations using the new COART open source protocol for the joint acquisition of art assets by large groups of people who are not familiar with each other. The best way to convince thousands of co-investors is to make an asset as accessible as possible, isn't it. What could be better than the walls of a famous museum for this?

COART Non-profit Organization will deal with the issues of exhibiting, transporting and insuring art assets acquired by groups of co-investors while ART-ASSET tokens of these art assets are freely traded on licensed securities exchanges.

Secondly, COART will provide an access to works previously hidden in private collections or closed storages for art lovers. This possibility is an important part of the idea of the public movement "Renaissance 2.0", which COART fully supports and for the implementation of which creates an expert community of a new type. This is a very important element of the COART ecosystem.

Collaboration with auction houses

Statistics show that more than 90% of high level art assets (worth from 1M \$ and above) are purchased for investment purposes.

First of all, we are talking about the art of the 20th century. 20th Century Art accounted for 80% of the total global auction of Fine Art in the first half of 2018⁶.

There are calculations showing that the direct access of retail investors and traders to participation in the trades of the top segment can increase the total financial turnover of the Art market by several times. COART is going to collaborate with leading auction houses to provide legal and financial access to auctions for small investors. We will repeatedly increase the number of bidders, attracting millions of new investors, which will inevitably cause a rise in the cost of top lots. The new system of relationships in the art sphere We are introducing new approach to the Art market for collectors, art dealers, gallery owners, art experts, auction houses, museums, investment funds, retail investors and traders.

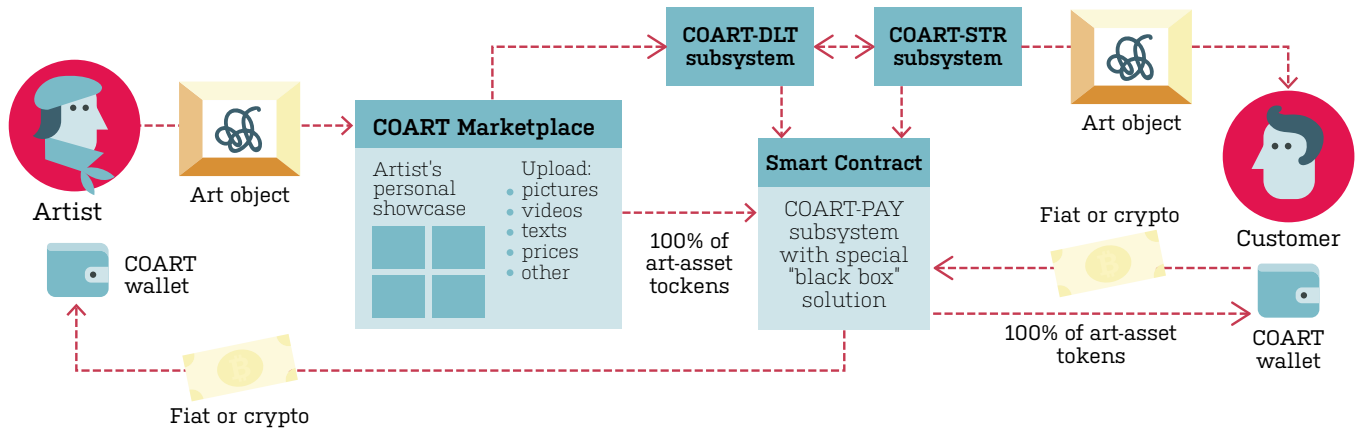
Our aim is to connect a huge, but very conservative Art market, with the technological capabilities of a rapidly growing investment and traders markets.

Within the framework of this new ecosystem the Art itself will be on the first place again, as a manifest of man's creative potential. For the creation of such ecosystem we are developing COART open source protocol, as a specialized blockchain with its own infrastructure based on EOSIO software.

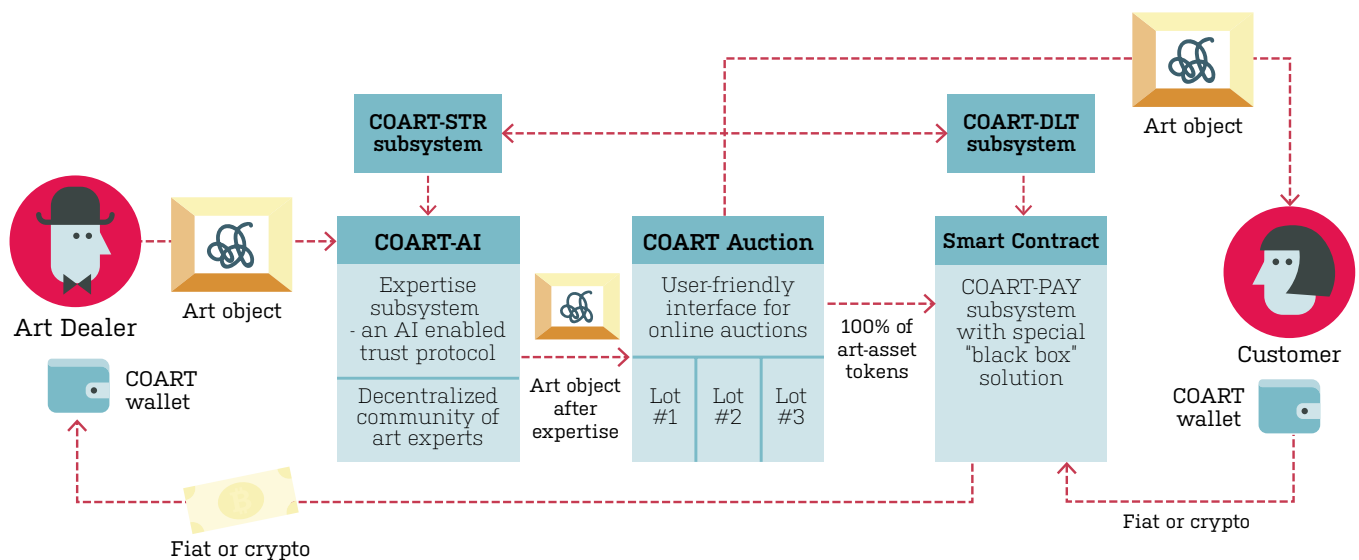
In addition, we will collaborate with traditional logistics and insurance companies that specialize in the Art market. We think that such collaborations are imperative to our success and logical to form.

COART Use Cases

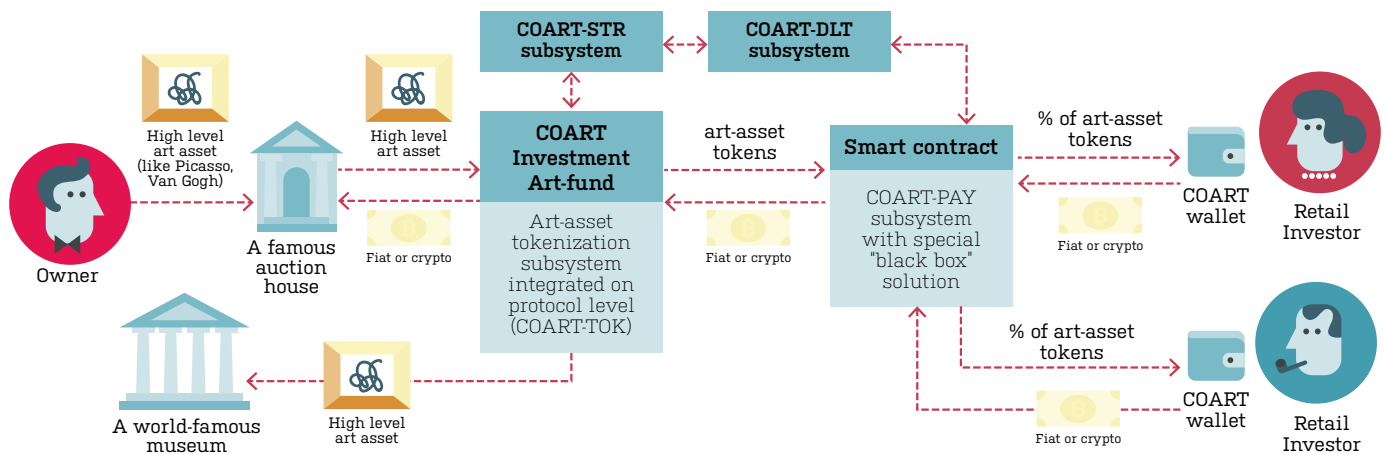
If you are an artist who wants to sell an art object or the right to use it or copy it you can create your own stand on the COART Marketplace, a global online art fair that runs 24/7.



Technologically, the Marketplace is based on the COART platform payment subsystem and the COART asset tokenization subsystem, so you don't need to worry about transaction processing and legal clearance when selling your art object, it's already included in COART Infrastructure on the level of protocol. When the sale happens, you simply get your money in preferred currency (fiat or crypto) in your COART-wallet and you can immediately use them.



If you are an art dealer or the owner of art object, which is interesting for collectors but doesn't have an authoritative review, we will offer you a new form of the art expertise provided by Expert Communities. They will allow you to obtain decentralized conclusions of independent experts, based on the data from COART distributed storage and received by the use of AI for processing large amounts of information. After that, your art objects may be auctioned, and if sold, you will automatically receive your money in the preferred currency with a minimum commission (not more than 6%), and the actual transaction just will be recorded in COART provenance ledger subsystem.



Investment Art-fund that allow retail investors to co-invest in the art assets of the top segment. For example to acquire shares (ART-ASSET tokens) in the works of Van Gogh, Picasso, Rothko etc.

After choosing the art assets in the schedule of leading auctions, retail investors are putting money in smart contracts using the usual Internet payment forms. The estimated minimum contribution of the participant will not exceed the amount in the range from \$100 to \$500, depending on the estimated price of the sale of the art asset.

Funds are paid immediately into smart contracts for the acquisition of a specific art asset. The Investment Art-fund that creates smart contracts using COART open source protocol can not use the money of investors for its own purposes, until it gives them the shares of the acquired asset, which will be evident from the very design of COART smart contracts.



Have no fear of perfection – you'll never reach it.

- Salvador Dali

COART Ecosystem

In accordance with the roadmap, COART Development team (CoinArt OU) will create infrastructure with easy adoptable **open API's** utilizing all the basic functions needed for convenient management of digital and tokenized art assets and ownership certificates.

To develop proof of concept (PoC) services that will show technical and legal framework possibilities of the art tokenization we will create 2 specialized companies and initiate 3 decentralized autonomous corporations (COART-DACs), which do not have their own management and personnel:

COART Investment Art-fund launches and manages a cluster of COART objects, giving to retail investors the possibility to buy security ART-ASSET tokens of various artist's artworks, like Van Gogh (VNG), Picasso (PCO), etc. Each ART-ASSET tokens will be customized including configuring token supply, initial distribution, token symbols and other specs.

COART Exchange DAC licensed tokenized assets exchange provides immediate network liquidity for the BID token and all other security ART-ASSET token pairs.

COART infrastructure and BID token implements Bancor protocol and is a hub network token serving as a relay for all other security ART-ASSET tokens.

COART Auction DAC creates user-friendly interface for online auctions for art assets of different levels of value, including a simple procedure for identifying and verifying the authenticity of art assets.

COART Marketplace DAC creates user-friendly interface for different marketplaces for art assets of different styles and value levels, including Digital Art and a special built-in crowdfunding tools. Everyone can create their own

thematic Marketplace, using the blockchain solutions of COART.

All listed companies will be established directly by the Ecosystem base company (CoinArt OU, Est) as a Proof of Concept (PoC), later it will be fully owned by the COART Investment Art-fund, which also has its own management.

The other three Ecosystem companies are to be represented as distributed autonomous corporations (DACs) and they do not have their own management, office expenses, and are thus managed by the dPoS protocol. In the beginning these companies will not be administered by CoinArt OU, but managed by an algorithm that takes into account the views of the pool of tokens holders who have a sufficient number of steaks at their disposal which is available to investors of seed & series A rounds.

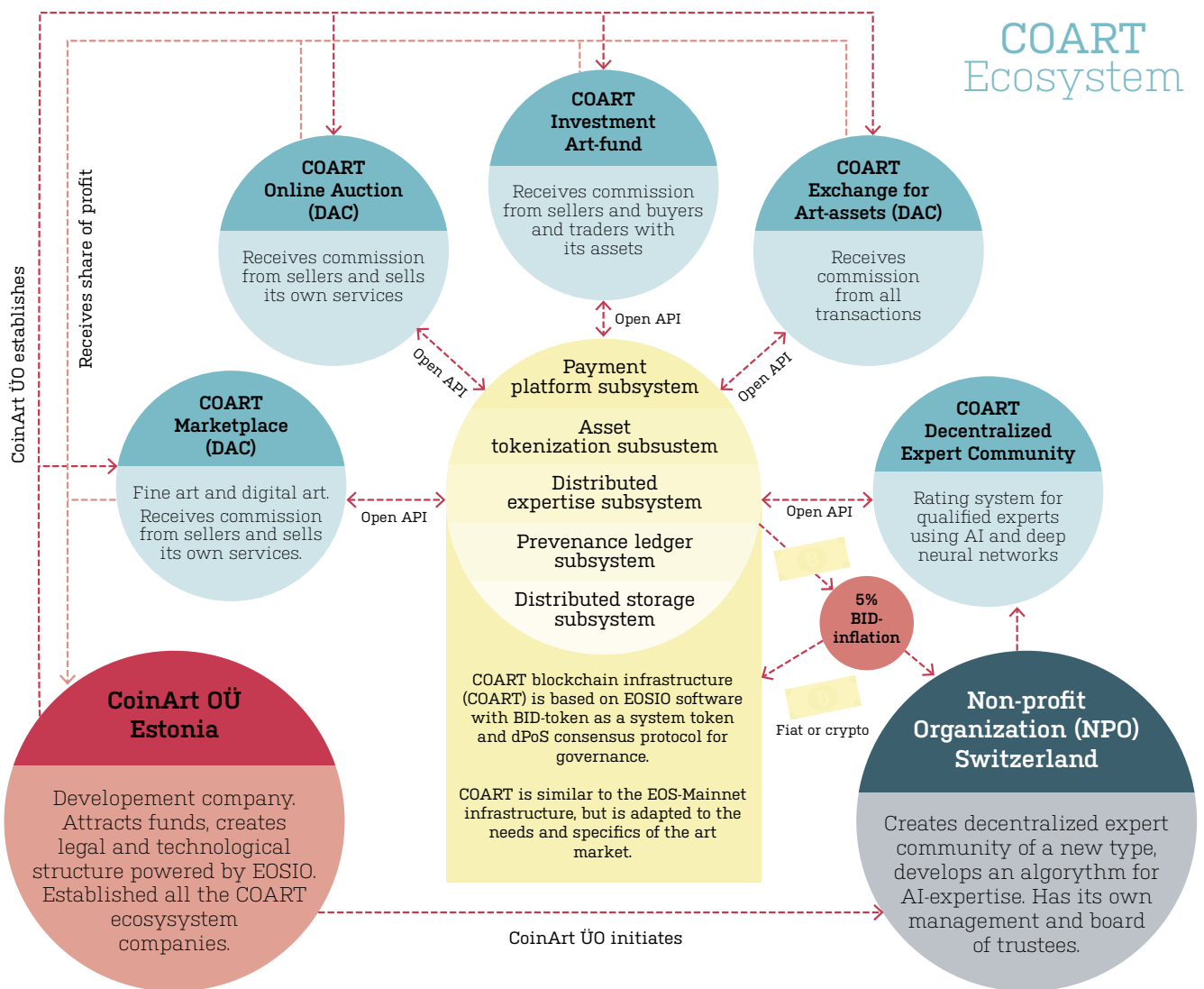
We understand that the ideal decentralized organization looks like it was described by Vitalik Buterin back in 2014:

–“The ideal of a decentralized autonomous organization is easy to describe: it is an entity that lives on the internet and exists autonomously, but also heavily relies on hiring individuals to perform certain tasks that the automaton itself cannot do”.¹

We as well are talking about a DAC subclass that has a concept of shares in a DAC which are purchasable and tradeable and those shares entitle their holders to continual receipts based on the DAC's success.

For the moment it's hardly possible to implement the ideal realization of DAC, but we will do our best to make it as decentralized as possible, but still complying with existing laws and regulations.

General COART ecosystem schematic relations:



Authenticity and identification of art objects for all types of relationships within the ecosystem will be provided by expert communities of a new type, allowing to obtain decentralized conclusions of independent experts, but based on the same data from **COART distributed storage** and the use of **COART artificial intelligence** for processing large amounts of information about it.

One of the goals for the Non-profit organization will be a task to create a model of such an Expert community related to the deployment of a network of regional offices equipped with the necessary tools. Here we can speak about its own management, a volunteer corps and board of trustees.

Technical Infrastructure

High level concept of technical infrastructure¹

Diagram of High level architecture concept of COART technical infrastructure coming soon*

*in the Technological document

COART blockchain infrastructure (COART-BI) will be created based on EOSIO software (MIT license) with BID token as a system token and all necessary customisations to fulfill platforms technical, functional and non-functional requirements of Art market. COART-BI will be made available to public fine art and digital art community needs and dPoS consensus protocol will be used for governance.

COART-BI is set up similar to EOS-Mainnet infrastructure, but it is adapted to the specifics of Art market for the reorganization of all segments of which COART open source protocol is being created.

COART-BI will be the most flexible infrastructure for investment into art assets and for tokenized assets management.

Thanks to the creation of EOSIO and the successful launch of the EOS-Mainnet infrastructure, the necessary conditions exist for the development and rapid deployment of a specialized blockchain based protocol that takes into account the specific needs of the Art market.

After Graphene Technology was described first time, all the art market was waiting for its best features and ricardian smart contracts that EOSIO has brought to us.

We are well aware of how EOS-Mainnet Infrastructure works and we believe that such a structure is what the Art market was waiting for art asset tokenization to go mainstream. Vytautas Kašėta, chief visionary at COART, is part of the development team of EOS Lithuania. Therefore, we knew about the plans of a strategic partnership between EOS and Bancor and the integration of the Bancor protocol at the core level in EOSIO from the beginning of 2018. We have been waited for this.

We are pleased that during EOS HACKATHON in London on September 22-23, Bancor announced COART among the 11 new partner companies running their EOSIO-based projects with the integrated Bancor protocol. We are sure that most of the projects on COART-BI infrastructure will be created by **COART community** developers who will be the part of EOS and Art market community, just as it is being done on EOS-Mainnet.

¹ The detailed technical side of the process will be disclosed by our team in the table form in the COART Technical Document, which soon will be presented to public.

COART infrastructure and all subsystems will be accessible via open source **RESTful APIs** for further integrations into community created distributed applications, front ends and third party services.

COART payment platform subsystem (COART-PAY) will be integrated on protocol level into COART, opening the possibilities of the system to buy art assets to all users, shares in them (security ART-ASSET tokens), the rights to use visual images of art assets, and also buy additional services inside COART ecosystem, using any fiat and cryptocurrencies legally. A "black box" solution issuing currency and asset based stable coins to provide easy entry for Art market participants.

COART asset tokenization subsystem (COART-TOK) will be integrated on protocol level into COART. For tokenization, management of assets and services will be used security ART-ASSET tokens, that are convertible and interchangeable directly through their smart contracts and internal exchange protocol based on Bancor software (Apache v2.0 licence). The Bancor software will enable automatic price determination and an autonomous liquidity mechanism for security ART-ASSET tokens, that add COART-TOK liquidity necessary for atomic swaps.

COART distributed storage subsystem (COART-STR) capable of storing and securing access to digital originals of fine and digital art assets, made available to art experts used as a base for asset tokenization and object identification, including 3D scan vault that will be created to secure the digital original copies of art assets.

COART provenance ledger subsystem (COART-DLT) an open brochure-catalog containing information about all the art assets passing through COART ecosystem, eliminating the possibility of their subsequent forgery or double sale, providing transparency of transaction and ownership.

COART distributed expertise subsystem (COART-AI) is Artificial Intelligence enabled trust protocol layer utilizing state of the art machine learning models and deep neural networks helping decentralized community of art experts to provide a new level of art expertise.

Please take a note on one very important moment – the technical solution, which we call a "Black Box" solution in our texts and on the schematics is our own development, combining several modern technologies and combined with the basic EOSIO code, which we use as the basis for creating the COART open source protocol.

This solution will allow all participants of commercial relations within COART ecosystem to pay and receive remuneration in any currencies that have legal circulation in their regions, doesn't matter will it be fiat or crypto. In combination with the use of the Bancor protocol code integrated into EOSIO software, which is used in the COART exchange subsystem to ensure the constant liquidity of all assets circulating in the Ecosystem, the "Black Box" solution will allow sellers and buyers of art objects to pay and receive money just as easily as how now you can buy, for example, airline tickets, or withdraw money from your card at the nearest ATM. We specifically draw your attention to this to clarify – COART is targeted at a wide range of users all over the world who do not need to know what is blockchain and how does smart contracts technology work.

Users simply see their own benefits from the use of COART and understand which "buttons" of a convenient, user-friendly interface to click on to get the results they need.

Just as now we do not think about the principles of the electrical network while turning on the lights in the house, the COART service will become a familiar part of life that "has always been there" like mobile phones or the Internet.

Tokenomics¹

COART self-sustained ecosystem utilizes two-tier token economics based on digital financial transactions (fiat money and cryptocurrency) between centralized, decentralized organisations and individuals participating in the ecosystem.

We have implemented a lot from the EOS tokenomics to create COART platform, because the project is based on experience that can be trusted. EOS developers have previously gained their successful experience with the BitShares decentralized exchange and the Steemit social blockchain platform based on the Graphene technology. BitShares Exchange appeared in 2014, earlier than Ethereum. Social network Steemit was launched in 2016. In essence, the EOS project is working with the third generation of the basic protocol.

Diagram of COART token economics coming soon*

*in the Technological document

dPoS protocol based consensus and incentive mechanism²

Delegated Proof of Stake (dPoS) is a method of achieving distributed consensus in a blockchain system. It is a variation of the Proof of Stake, which was developed as an alternative to the Proof of Work system that is used in mining. In Proof of Stake, the ability to earn rewards through processing transactions rests with token holders (those with "stake") rather than miners.

In dPoS, token holders vote for a relatively small number of block producers that validate transactions within the network. This architecture can be seen as a tradeoff between node centralization and scalability – a dPoS system with fewer nodes can validate more transactions.

1 *The detailed token economy model will be disclosed by our team in the table form in the COART Technical Document, which soon will be presented to public.*

2 *The detailed technical side of the process will be disclosed by our team in the table form in the COART Technical Document, which will be posted on our website soon.*

The future of delegated governance is bright. DPoS has the capability to scale to higher levels than currently available mechanisms. dPoS' real-time voting, a reward system for block producers and reputation criteria for achieving consensus give power to stakeholders who are capable of voting to decide on who produces blocks and who doesn't. It is logical that the right to choose teams of producers who compete for the right to confirm blocks, to support the work of infrastructure and to receive remuneration for their work from 5% BID inflation money will be primarily in the hands of the tokenholders who acquired BID-tokens at the seed-round stage.

It is important to immediately understand that in our case tokenholders, as in the EOS Ecosystem, have the opportunity to participate in DAC management. Thus, even the very first enterprises in COART ecosystem, which we establish as PoC, are based on decentralized principles of management and decision making, and the BID token itself is not a tool for exchange speculation, but it plays an important technical role in the work of the entire ecosystem.

High level data flow diagram
of consensus mechanism coming soon*


*in the Technological document

Infrastructure management and block production

COART infrastructure will utilize similar inflationary block rewards and other incentivization model used in EOS-Mainnet delegated Proof of Stake (dPoS) consensus architecture. In Proof of Stake, token holders produce blocks themselves in proportion to their holdings, whereas in DPoS, token holders elect third party block producers to produce blocks and validate transactions.

CoinArt OU as a creator of COART ecosystem platform alpha version will set up several initial nodes to start block production.

Later on infrastructure management will be moved to decentralized parties using inflationary systems token reward economics model for incentivization of infrastructure nodes and block producers.



At a high level, this network design is related to broad developments and considerations within the blockchain space. Decentralization is a multifaceted characteristic of distributed systems that involves more than just the number of network validating nodes and extends to their distribution by location and hardware manufacturer.

On the EOS blockchain token holders elect 21 block producers who confirm transactions. Blocks are produced in rounds of 126, where each elected block producer confirms 6 blocks. Blocks that were not created by the designated producer are skipped and the transactions are included in the next block.

Unlike the EOS-Mainnet creation process to start COART-BI there is no need to invite development teams from different countries to create an architectural infrastructure solution. CoinArt OU will develop final secure architecture based on an already operating EOS-Mainnet network with required updates – we will use best practices to avoid mistakes and difficulties that manifested in the EOS-Mainnet infrastructure after its successful launch.

COART-BI, based on its own infrastructure, may keep a greater number of nodes, but not more than 5% of annual BID inflation is included. Producer unit teams will be financed using this money, as well as the functioning of the COART Non-profit Organization.

In particular, such important elements of the Ecosystem as the integration of scientific research in the field of AI, deep neural networks and machine learning, which play a key role in creating a decentralized Expert Community of a new type and creating a blockchain archive of the cultural Heritage of Humanity.

Among other things, these goals also imply the creation of a global network of COART NPO offices, in which the primary "digital cast" will be taken from works requiring identification.

It is on the basis of such "snapshots", including a set of the most effective methods for determining authorship and authenticity, that the distributed expert community and the COART-AI integrated subsystem will act, which together will give excellent results in detecting those that were considered lost or unknown earlier creations of masters, and at the same time will allow to clear the art market from fakes that have flooded it and to return the confidence of both investors and millions of the Art lovers around the world.

Token utility³

BID token (COART system token) will allow access to all payment and infrastructure utilities:

- issuance of asset tokens (digital share certificates) of art assets (ART-ASSET tokens) with the possibility of their full or partial sale, the transfer of ownership, donation, inheritance, etc.
- internal native conversion of fiat and cryptocurrency for their exchange to the ART-ASSET tokens or any service within COART ecosystem, as well as the ability to reverse the conversion of ART-ASSET tokens to withdraw funds from COART ecosystem.
- management of digital rights to the usage of art asset in perpetuity or for a limited time (printing of legal 3D-copies, use in design solutions, etc.)
- access to global COART distributed storage of art assets, storing all data about assets that have been authenticated using COART open source protocol
- access to the global COART provenance ledger which will eliminate the possibility of counterfeit or double sale of art assets in the future.
- automated accounting and payment of royalties (royalty fees)

The open standard web assemblies are used to create smart contracts based on EOSIO, which is more modern and versatile than EVM (Ethereum Virtual Machine), with EOS own parallel smart contract execution on the platform.

EOSIO has a related feature, inline actions, that allow a contract to call code of another contract as part of the current transaction. Unlike the action notification feature, inline actions are limited to allocating the resources of the contract that generated the inline action. Action notifications forward on the resource allocation permission of the original action.

COART developed specialized smart contracts to carry out trustless transactions for artworks purchased regardless of their sizes. The mechanics of the smart contract look like this: Every time funds (whether fiat or crypto) are deposited into smart contract the special "black box" solution of the COART payment platform (COART-PAY) converts the funds into the appropriate amount of BID tokens using native tethered- or stable- payment tokens as a means of exchange.

The smart contract is blocked until either successful acquisition of an artwork or an unsuccessful one. After either event the smart contract becomes active and outcomes are based on whether an artwork was acquired or not.

³ *The detailed technical side of the process will be disclosed by our team in the table form in the COART Technical Document, which will be posted on our website soon.*

Legal part of COART

We have analyzed the general situation in the crypto economy, including the unclear regulations and extremely speculative state of modern crypto trading.

Taking into account the cautious attitude of investors and general public to blockchain based projects we have accepted the only right decision, in our opinion – focusing on the development of technological part of the project in conjunction with the creation of a legal basis for the successful and transparent launch of all elements of the Ecosystem in of the world, after the creation of both the COART open source protocol itself and the COART infrastructure – an offline technological basis consisting of a network of blockchain producing master nodes, necessary for launching the COART Platform.

We have decided to announce public sale of tokens after the presentation of full alpha version of the COART platform, which we are planning for December 2018.

We emphasize that BID-token is a native utility system token of the COART blockchain infrastructure, not intended for crypto speculations as a security token and is not a share of the project development company CoinArt OU (Estonia). Participation in public sale will be offered primarily to the Art market participants who wish to use BID token among the first, starting with the beta testing of the COART Platform, scheduled for March 2019.

BID token legally meets the requirements of the Estonian Financial Supervisory Authority (EFSA) as payment token and is a subject to regulation in accordance with the Estonian Money Laundering and Terrorist Financing Prevention Act (MLTFPA):¹

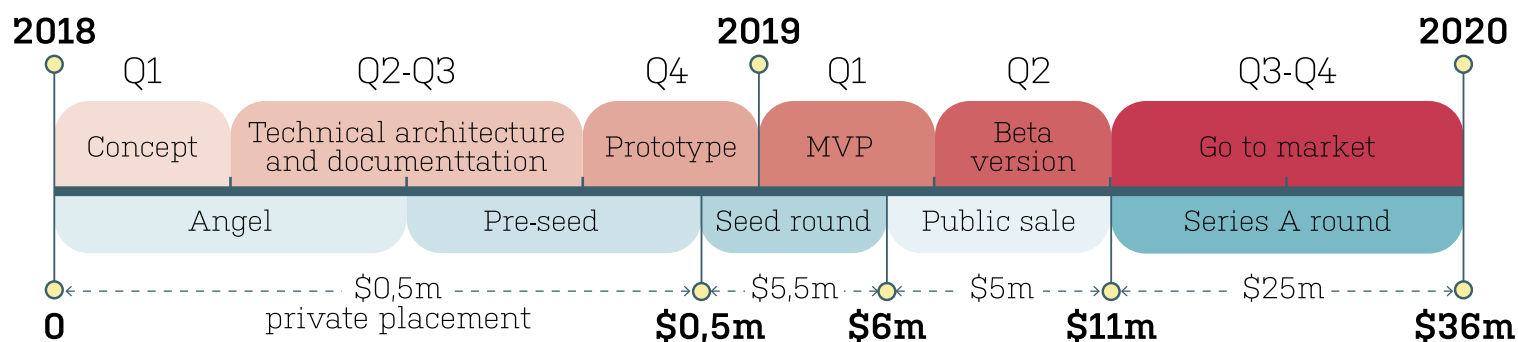
- "In case the tokens are intended to be exclusively used as a means of payment for acquiring goods or services or as a means of money or value transfer, they shall be considered as payment tokens. Such tokens do not give rise to any claims on their issuer.

The definition of payment tokens corresponds to that of a virtual currency in the provision § 3 point 9 of the MLTFPA, being a value represented in the digital form, which is digitally transferable, preservable or tradable and which natural persons or legal persons accept as a payment instrument, but that is not the legal tender of any country or funds for the purposes of Article 4(25) of Directive (EU) 2015/2366 of the European Parliament and of the Council on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (OJ L 337, 23.12.2015, pp. 35–127) or a payment transaction for the purposes of points (k) and (l) of Article 3 of the same Directive.

The issuers of payment tokens, where the payments are accepted also in fiat money, should follow the at least the due diligence measures provided in the MLTFPA."

1 <https://www.riigiteataja.ee/en/eli/517112017003/consolide>

Roadmap



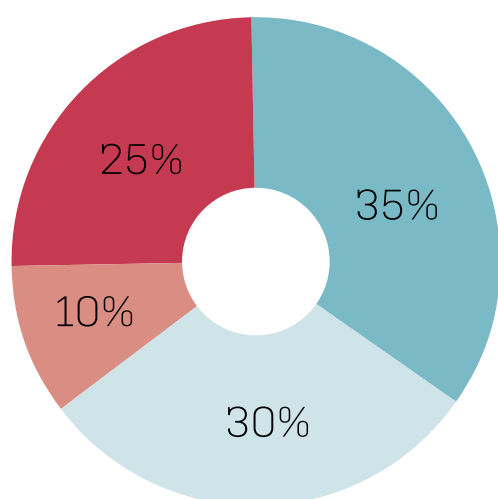
Project funding (pre-seed, seed & series A rounds)

Funds necessary for concept development and technical documentation were raised during private angel investment round in early 2018. Further funds for MVP and Platform development, entering the market and business development will be raised from early stage investors and early adopters during the 3 forthcoming funding rounds - private Seed round, Public utility token offering and Series A. Proceeds from private Pre-seed round are being used for design, architecture and the development of demo version of the Platform.

In upcoming Seed round by means of SAFE and SAFT contracts we intend to raise \$5.5M (soft cap). Proceeds from which will be used for the development of MVP, early beta version of the Platform and early user adoption.

Public utility token offering is planned to attract early users and adopters to the beta version of the COART Platform. Proceeds are intended to be user for first art asset acquisition, tokenization and to start early trades of fine art asset tokens.

In the later Series A funding round we intend to raise another \$25M (hard cap). Proceeds will be used to carry out going to market strategy, user acquisition and Platform growth.



Total planned proceeds allocation:

- 35% – Platform development
- 30% – Marketing & business development
- 25% – Company reserve & liquidity pool
- 10% – Legal & compliance

Glossary

DAO – decentralized autonomous organisation

is a concept of fully automated business entity represented by rules encoded as a computer code that is transparent, controlled by shareholders and not influenced by a central government. DAO's financial transaction record and program rules are maintained on a blockchain. The precise legal status of this type of business organization is unclear. Sometimes referred to as **decentralized autonomous corporation (DAC)**

ART-ASSET tokens – a so called digital share certificates of art assets (also called equity tokens or asset tokens)

COART blockchain infrastructure (COART infrastructure)

– technological platform running COART development team released software with BID token as a system utility token created to public fine art and digital art community needs and leveraging dPoS consensus protocol for governance.

COART ecosystem – an interconnected platform combining COART blockchain infrastructure together with all functional subsystems needed for art market use cases implementation including art funds, foundations,

exchanges and other services providers.

COART open source protocol

– all software produced by COART development team that is made publicly available by the team will be licensed as open source and will be available for other individual developers and COART ecosystem participants needs.

COART development team

– a core team at CoinArt OU (Estonia) software, infrastructure and business developers with the mission to create all the needed software parts and specifications to create COART ecosystem and to maintain the core version of the COART tokenization platform.

COART open API

– COART infrastructure and all subsystems will be accessible via open source **RESTful APIs** for further integrations into community created distributed applications, front ends and third party services.

COART community – COART infrastructure users, enablers, block producers, experts and independent developers as well as other Art market communities members willing to use platform services or develop other peer-to-peer legitimate services.

COART provenance ledger subsystem (COART-DLT)

COART provenance ledger a distributed ledger that records all data about past and current transactions that confirm the history of ownership and exposure of specific art assets

COART distributed storage

as a common distributed storage of large amounts of data for all art assets passing through COART ecosystem of specific art assets.

dPOS consensus protocol – a delegated proof of stake mechanism where token holders vote for a relatively small number of block producers that validate transactions within the network.

EOS-Mainnet infrastructure

– an independently run blockchain network infrastructure running official EOSIO software, being maintained by public nodes, independent EOS developers and called EOS Mainnet.

Liquidity provider system

– certain market making algorithms which read the market in real time and make automatic decisions and performance is continuously monitored to provide sell and buy orders on a continuous basis with minimum bid-ask spread and minimum size.

The Team



Dmitrii Slabodchikov
Founder & CEO

Close acquaintance with various artists, art dealers and art experts allowed Dmitrii to get great experience in contemporary art sales, understand the principles of the art market, and lead the project COART.

[Linkedin](#)



Vytautas Kašėta
Co-founder & CVO

Visionary of crypto economy and distributed cryptography systems. Vytautas is a recognized leader in the fields of Information and Information security management as well as PKI and ICT architecture.

[Linkedin](#)



Andrius Bartminas
Co-founder & CFO

International business development professional with a proven experience of financial planning and management as well as working in a large-scale innovative projects. Co-founder at New Capital – new generation venture capital fund and innovation factory.

[Linkedin](#)



Dimitri Granitske
Co-founder & CTO

Many years Dimitri is working on the field of information technology services and software development. He took part in various projects including Sun Solaris product line, Sun Ray technology.

[Linkedin](#)



Roman Rashimas
Chief Relationship Officer

Professional in the field of SMM and Community Management. Roman has been promoting various projects on social media for more than 5 years. Law student. Responsible for communication with COART representatives worldwide.

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