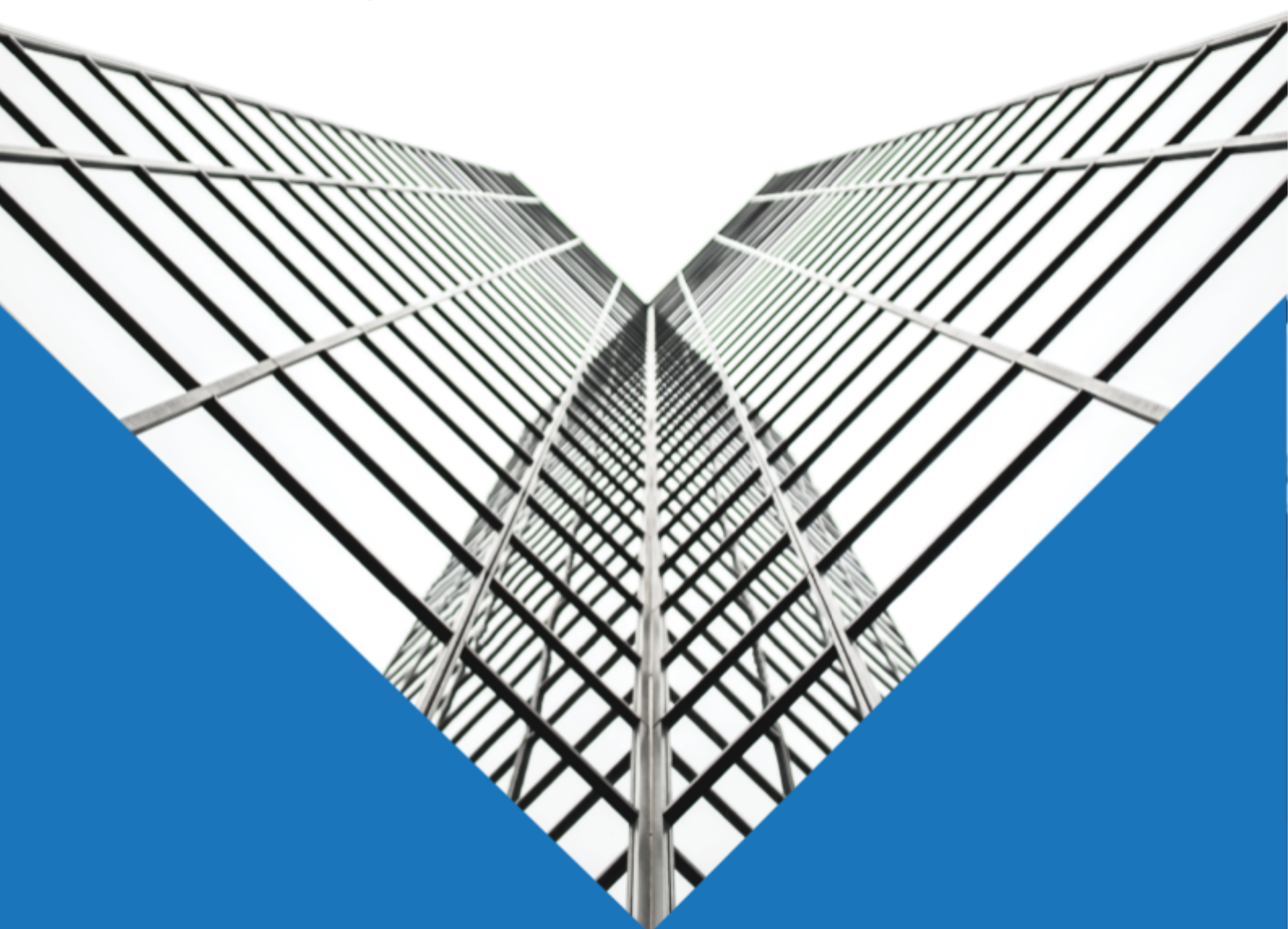




AdEx



AdEx: A Decentralized Ad Exchange

WHITEPAPER

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Abstract

The AdEx team is building a next generation online ad exchange that is based on blockchain technology. We will focus on the video entertainment industry as an advertising medium and will provide an intuitive and transparent advertising platform.

The development of the AdEx solution will be financed through an initial token crowdsale rather than through venture capital and shareholders.

Our aim is to disrupt the existing online advertising landscape and address the significant problems it faces: advertising fraud, privacy and consent to receiving sponsored messages, etc. With online advertising overpowering all other advertising mediums and accounting for close to 40% of global marketing and advertising spend in 2017, we see the need of innovation in that sphere.

We believe we can empower advertisers and publishers with a platform that is secure, transparent and beneficial for all the parties involved in the process, consumers included.

Our expertise in the fields of software development, blockchain & cryptography, video streaming and online advertising give us the confidence in creating an ad exchange that is superior to all of the existing solutions around the world.

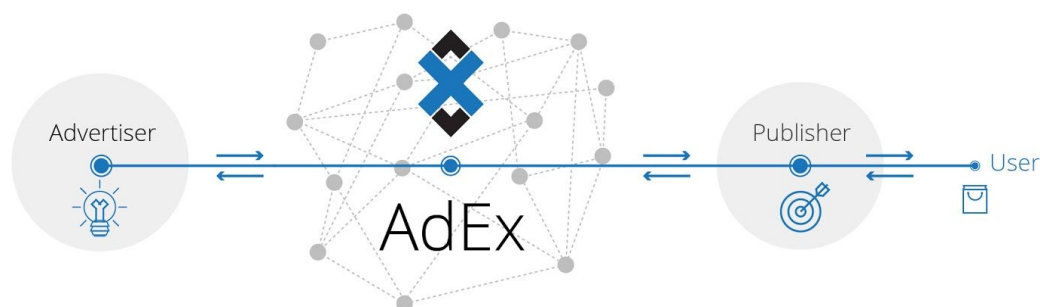


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Introduction

AdEx is a decentralized ad exchange built on blockchain and smart contracts. The network places an emphasis on the entertainment industry and in particular on video streaming services as publishers. The AdEx platform is designed to disrupt and replace the traditional digital advertising models by providing a transparent, focused solution for advertisers to collaborate with ad publishers and reach potential clients.

The core feature of AdEx will be the so-called *AdEx Profile* - a personalized page that allows every end user to understand and control the ads delivered to them. Giving more control to the user is highly beneficial for advertisers: users voluntarily provide information about their preferences and consumer behavior, about their shopping habits and purchase intent, etc. This means that with the help of the AdEX Profile advertisers achieve surgical precision for ad targeting and ensure a high return on ad spending (ROAS).

The technology of AdEx leverages blockchain and smart contracts, thus eliminating the complexity of existing ad serving networks. The network is regulated by the users and the users only, taking care of the most common issue advertisers today are facing: lack of transparency and incorrect/unclear reporting of advertising campaign results.

Team

AdEx is being developed by the same team that created the video entertainment hub Stremio, which grew from 0 to 3+ million users in just under 2 years.

Lead by Ivo Georgiev and Dimo Stoyanov, the team brings to the table extensive experience in the areas of software development, cryptography and blockchain, video streaming, as well as in marketing and online advertising. This combined knowledge and professional background is an essential prerequisite for the success of AdEx.

The AdEx team is advised by WINGS - a decentralized platform for crowdfunding projects that was recently [named one of the top fintech startups](#) by the CoinTelegraph. WINGS have a core role both in advising the AdEx project itself, and in providing a platform for the crowdsale.

The team is also backed up by BITMAIN Technologies, a world leader in Bitcoin and cryptocurrency mining technology. In 2015, Bitmain made a significant investment in the Stremio platform.

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Business case

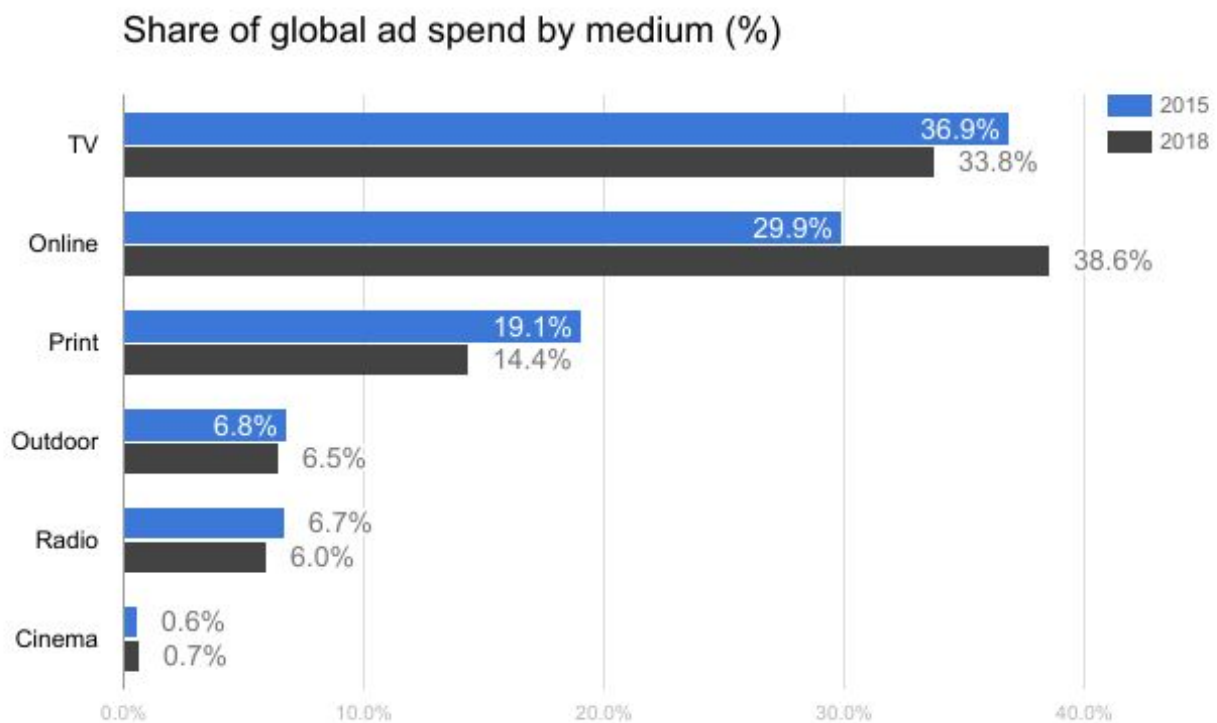
What makes AdEx special: Solving the problem of online advertising

Global advertising and marketing investments continue to grow exponentially around the world, and since last year we see a significant shift in the importance carried by different advertising mediums: while TV has always until now been king for advertisers, it is slowly being outrun by online & digital channels.

In 2017, global online advertising will outspend the ad king - television for the first time. Zenith's *Advertising Expenditure Forecasts* report (September 2016) predicts an average growth of 14% for internet advertising in the period 2015-2018.

The report stipulates that by 2018, the internet would account for 38.6% of all global advertising investment. In 2018 alone, advertisers are expected to spend more than \$220 billion, up 11.7% from the 2017 projection of \$198.8 billion.

Despite its huge growth, however, the online advertising industry struggles with a lot of issues. We have identified the ones that affect it the most.



Source: Zenith

Problem #1: Lack of consumer consent

While popular advertising networks like the ones of Google and Facebook allow for some extent of consent and control over what ads users see, this functionality is very limited. Furthermore, it is directly bound with the targeting parameters of each campaign, launched by an advertiser - if an advertiser makes a mistake when defining these, the ad will be broadcast to people who may not be interested in it and may not want to see it.

Solution: The AdEx Profile

As we mentioned earlier in this paper, each and every user, to whom AdEx serves ads, will have their own profile where they can be as precise as they want outlining their interests and preferences. This profile will ensure that consumers only see ads that are relevant to them. For advertisers this means more precise targeting, less opportunities for mistakes when setting their campaigns, and higher conversion rates.

Problem #2: Privacy concerns and data misuse

Major ad serving networks and exchanges operate with huge amounts of centralized data that can easily be traced back to the consumers' identities. Despite legal disclaimers, consumer have no knowledge of the purposes, for which their data is used, which is a threat to their online privacy - a threat the end users can do nothing about.

Solution: Blockchain ensures anonymous use of big data

The blockchain technology, which AdEx utilizes, allows to anonymize large chunks of data so it is only used for statistical purposes. Put simply, with the help of blockchain, advertisers still get to receive and process data about their target audiences and consumers in the form of statistics only - without compromising the privacy of these consumers.

Problem #3: Lack of bidding transparency

Existing real-time bidding (RTB) platforms offer no information about ad bids whatsoever. This means that an advertiser is *told* the maximum bid for a particular ad property is \$X but is not given the opportunity to verify this.

Solution: A decentralized exchange that can be audited

Due to the fact that AdEx is based on blockchain, advertisers can easily trace every click/view and verify every component of a campaign (participants, ad placements, impressions and clicks, etc.). The information is decentralized so it can't be hogged or manipulated by the ad exchange so advertisers are only paying for actual results.

Problem #4: Unclear and/or misleading reporting

Online campaign reporting is every advertiser and marketer's nightmare. Each and every existing advertising network measures different metrics - one would report on clicks, another one - on sessions; one would give details about invalid clicks, another wouldn't; and so on. This prevents advertisers from being able to cross-check data and results, from using unified KPIs across all networks, and from accurately tracking return on ad spend (ROAS).

Solution: Unified real-time reporting

Blockchain provides a universal data set that every advertiser can understand and use to analyze campaign performance. Further to that, AdEx will allow real-time reporting (existing networks require at least few hours to aggregate the data and show it to the advertisers). This way, advertisers can quickly spot trends and adjust their campaigns for maximum conversions. With real-time reporting they can also easily test if a campaign is set and tracked properly.

Problem #5: Ad fraud

The current online advertising ecosystem is flawed. It enables fraud committed by advertising networks, by advertisers and by malicious third parties. According to reports from ad agency The&Partnership and the Adloox audit verification company, in 2017 brands will suffer losses in the amount of \$16.4 billion due to ad fraud (bots, exploiting backdoors in ad serving networks, etc.).

The question of advertising fraud should also be addressed by ad publishers. The global media supply chain also needs to change to ensure ads viewability transparency, reliable measurement, compliance rules and common standards for advertisers.

Solution: The AdEx anti-fraud mechanisms

AdEx will equip advertisers with technical mechanisms to trace and prevent fraud and invalid ad traffic. This technology in combination with the transparency, real-time reporting and audit

accessibility of blockchain helps deliver a platform where advertisers know exactly how much and why they are paying for advertising inventory.

Problem #6: Ad blockers & ad blindness

Ad blocking software rose 30% in 2016, reaching a total of 615 million devices worldwide where ads and sponsored messages are blocked (308 of these were mobile devices). Users are deliberately choosing to install ad blockers, growing weary of ads that are too intrusive and/or irrelevant.

On top of this, users are also prone to developing ad blindness - a condition of consciously or subconsciously ignoring any piece of visual information that resembles an ad or a banner.

These two phenomena cause revenue losses to advertisers as the latter are unable to fully reach their target consumers.

Solution: Clever, meaningful ads that people want to see

AdEx will deliver unintrusive ads that are precisely targeted. Through this, the end users will be seeing ads that are facilitating their consumers habits rather than annoying them.

The exchange will also offer advertisers to select for their ads visual design that resembles native content as much as possible .

Problem #7: Central regulation

Most of the existing ad exchanges rely on central regulation, in some cases from tech giants like Facebook and Google. While this has advantages, it's also extremely limiting, restrictive and authoritarian. It's not uncommon to see ad campaigns, or even advertisers/publishers getting banned unfairly, with little to none ability to appeal, let alone quickly.

Even considering those restrictions, scam/malware ads still exist to date, even on Facebook and AdSense.

Solution: User-powered governance

With AdEx, the consumer determines what's right or wrong. The power of crowdsourcing has proven itself over the recent years, and the "consumer is always right" statement has never been more true.

Furthermore, we believe that giving users the power to essentially filter out bad advertisements will be beneficial for overall conversions, and therefore advertisers and publishers.

Problem #8: Payment methods limitations

All existing ad networks require advertisers to use verified payment methods such as bank accounts, credit cards, etc. However, for many advertisers (especially micro businesses in developing countries), that's an issue.

Solution: Cryptocurrency

Blockchain and the use of cryptocurrencies allows literally anyone to take advantage of advertising possibilities to grow their business.

Problem #9: Lack of focus

General ad networks and exchanges act as mediators between advertisers and ad inventory providers - and usually cater to very diverse ranges of both groups. This is why there are often issues like inappropriate ad formats, wrong audience targeting, etc.

Solution: Focus on one niche industry

The AdEx team comes from a background in VOD and video streaming - and this is why the network will initially work with publishers who are exclusively video entertainment providers. We know this market and we know how to best serve it so advertising there is beneficial for all the involved parties.

This does not exclude the possibility of AdEx opening up to other types of publishers in the

future with AdEx V2 (see Roadmap), or developing multiple sub-divisions of AdEx, each catering to a specific niche.

Summary

As you can see, there are way too many things wrong with the current state of the online advertising industry. That means that the time has come for an impactful disruption of that landscape, and this is where decentralized ad exchanges such as AdEx come in.

With these new solutions, **advertisers** will be able to regain control over their advertising spend, they will be able to limit their exposure to potential ad fraud and will be empowered to achieve higher return on their marketing spending.

Publishers will benefit from more interest from advertisers, more targeted ads and higher level of end user satisfaction and ultimately - higher advertising revenues.

Last but not least, **end users** will finally have an online environment where they can receive targeted, tailor-made ads without compromising their privacy and personal data.

Competitive landscape

Traditional ad networks

There are currently hundreds of traditional local and global ad networks available on the market; however, Google and Facebook are the main players there. Both companies support their own advertising networks that are very popular among advertisers because of the large amounts of data both Facebook and Google collect about the end users.

However, being advertising giants, these networks do very little to please the advertisers. They bring unclear reporting that is easy to be misinterpreted, as well as too many restrictions as to what and how can be advertised.

Furthermore, there is plenty of room for ad fraud left by these networks and as a result, advertisers are exposed to humongous losses.

Decentralized ad solutions

A couple of other similar projects related to advertising with smart contracts have been announced recently: Brave Software's Basic Attention Token (BAT), NASDAQ's NYIAX, qChain, adChain.

While all these ad exchanges come from strong teams, the truth is we are all sailing in uncharted waters here. This is why it is extremely important to have exceptional understanding of both cryptography and ad tech, as well as to stay as open in possible in terms of platform and device availability.

On top of this, the more decentralized ad solutions, the more viewpoints will be introduced to solving the issues of existing ad networks, and the more the different networks will be able to learn from each other. By doing so, we will accomplish a positive and empowered ecosystem.

Last but not least, some of these solutions are restricted in one way or another: for example, BAT is limited to the Brave browser only; NIYAX is targeting the financial industry, etc. This will have a negative impact on their adoption speed and range.

We are excited about the fact that we do have competition as this will push us to deliver a service superior to the others. Competition is healthy and will benefit the entire advertising ecosystem.

Comparison matrix

	Available on all platforms & devices	Not restricted to an industry	Transparent reporting	Fraud-proof	Protects user privacy
Traditional networks	✓	✓	✗	✗	✗
BAT	✗	✓	✓	✓	✓
NIYAX	✓	✗	✓	✓	✗
qChain	✓	✓	✓	✗	✗
AdEx	✓	✓	✓	✓	✓

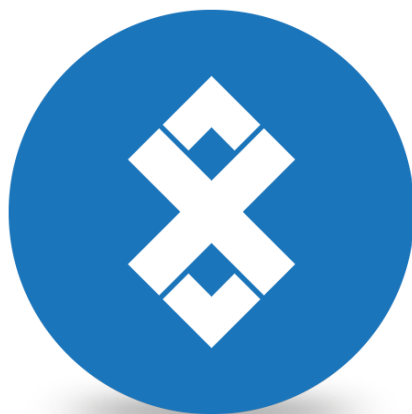
Token

Within the AdEx ecosystem, the AdEx token (ADX) will be used internally to buy or sell advertising space and time.

Advertisers would be able to create ads, and then place bids for them, setting the bid in ADX token. The advertisers may bid for a specific number of impressions, clicks or conversions (e.g. sign-ups, purchases, etc.). Once the Publisher accepts a bid, the token will be frozen

until the Publisher proves that they have completed the goal. When that happens, the token is transferred to the Publisher's balance.

Certain actions within the network would be incentivized by the creation of additional tokens, which will be received by whomever committed that action. This will ensure slow, on-demand inflation of the token so that there's enough in circulation for the network to be healthy and usable.



Technology

The AdEx token itself (ADX) will be based on Ethereum, a blockchain-based distributed computing platform. Ethereum allows smart contracts - distributed computer programs that can facilitate online contractual agreements in a cryptographically secure manner.

Ethereum is open-source and adopted by institutions like JP Morgan, Deloitte, IBM, Santander Bank, Microsoft, the Luxembourg Stock Exchange and Toyota.

Smart contracts are what enables the existence of AdEx as a truly transparent and decentralized ad serving exchange. Smart contracts are essentially computer programs that run on a distributed public ledger, therefore ensuring their result is always consistent, transparent and cannot be manipulated.

This technology also ensures that AdEx removes the need for intermediaries and having a central authority you need to trust - through smart contracts, the complex process of choosing ads, tracking ads and facilitating bidding/payment can be described in the contract itself, while still running on the distributed Ethereum network and taking advantage of the blockchain qualities.

Another core component of AdEx is storage. Since the blockchain has high storage costs, AdEx adopts IPFS to host advertisement-related media, such as images, videos and larger metadata. IPFS is also decentralized and distributed, but it's built especially for storing and sharing files. AdEx would still allow ads hosted on existing infrastructure (e.g. CDNs), to allow compatibility with the existing ad industry, while still having the transparency and efficiency of our solution.

IPFS is an open source project developed since 2014 by Protocol Labs with help from the open source community.

AdEx may adopt IOTA as a possible layer 2 on top of Ethereum in order to improve scalability.

In the future, there's a possibility of running AdEx on top of other smart contract platforms such as RSK (based on the Bitcoin blockchain) and aeternity (scalable and fast).

In architectural terms, AdEx is designed in a way that is compatible with most of the existing ad tech industry, which allows for easy adoption by publishers and advertisers. AdEx can be used in websites (through publisher-hosted endpoints), mobile applications, desktop applications and even embedded devices.

Roadmap



Stage 1: Research

Complete (June 2016 - June 2017)

During this stage we researched the feasibility of the vision to create a decentralized and transparent ad network. We worked closely with the WINGS Foundation and other advisors to arrive at the current concept and assemble a suitable team.



Stage 2: Token Crowdsale

June 2017 - July 2017

This stage marks the deployment of the first AdEx smart contract and the announcement of ADX token. The ADX token will launch with the help of WINGS.

There will be a crowdsale in which 80% of the ADX token will be offered and the rest will be distributed to the team, advisors, bounty program and WINGS DA.

The crowdsale is necessary to fund the development of the prototype and the business development required to drive initial adoption.




Stage 3 - Prototype

July 2017 - February 2018

The first AdEx prototype will be delivered as early as February 2018, and it will include a basic ad bidding system with a front-end for advertisers and a front-end for publishers, as well as an SDK for publishers.

This prototype will focus on native advertising and display advertising.

It will be completely open-source and independently audited.




Stage 4 - Adoption and Improvement

February 2018 - January 2019


This stage will include heavy business development. The software development will be driven by the market needs and feedback as we drive the adoption of the AdEx system.

This stage will bring massive improvements to the user targeting and reporting.



We also plan to enhance the user experience - most importantly, we will work towards making the integration of the publisher SDK as easy as possible.

Additionally, we will bring other forms of advertising during this stage, such as video advertising.



Stage 5 - AdEx V2

Starting January 2019

AdEx V2 will be a technological re-vamp to focus on scalability, as AdEx is adopted by more and more publishers and advertisers.

This stage involves bringing AdEx to other blockchains, for example RSK and aeternity.

Crowdsale

The crowdsale will fund the initial development and adoption of the AdEx network.

It will happen through **Ethereum** smart contracts, with audited smart contracts & platform provided by **WINGS**.

The crowdsale will start on June 30th and will end on July 30th or when the maximum amount of tokens is sold.

You can participate in the crowdsale only with ETH currency. The address will be announced at <https://tokens.adex.network> a few days before the crowdsale.

The token price will be fixed during the crowdsale at 1 ETH = 6500 ADX tokens.

Tokens will be immediately transferrable after the crowdsale.

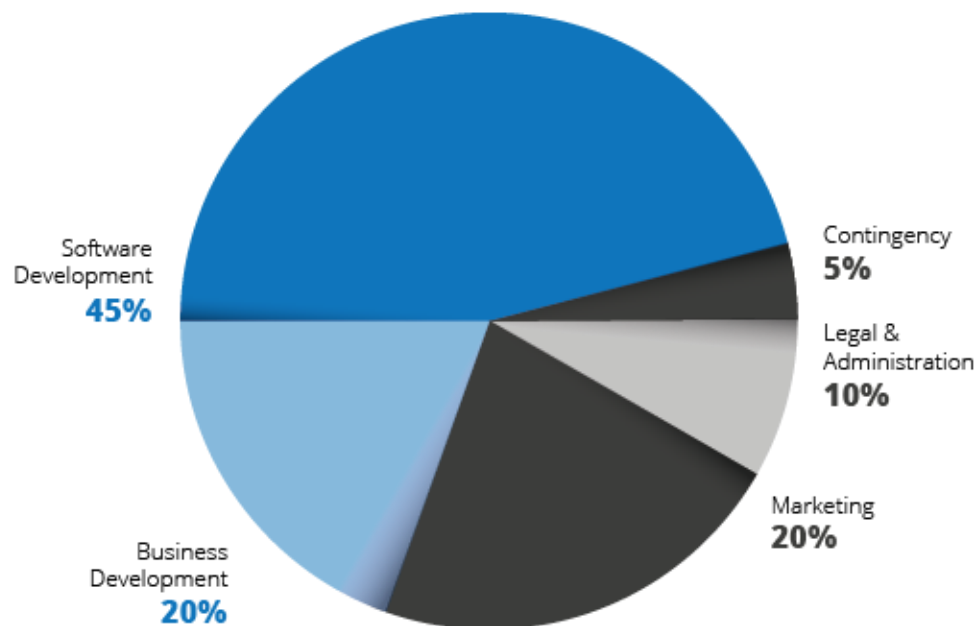
The maximum amount of tokens that can be sold to the public is **800,000,000**, which amounts to **80%** of the total tokens (see Token allocation).

The unsold tokens will be locked for 12 months and will be used by the company to promote it's operations, development and incentivize adoption by advertisers and publishers.

The minimum amount of tokens we intend on selling is 20,000,000.

For Additional information, as well as instructions on how to participate in the crowdsale, visit: <https://tokens.adex.network>.

Budget allocation

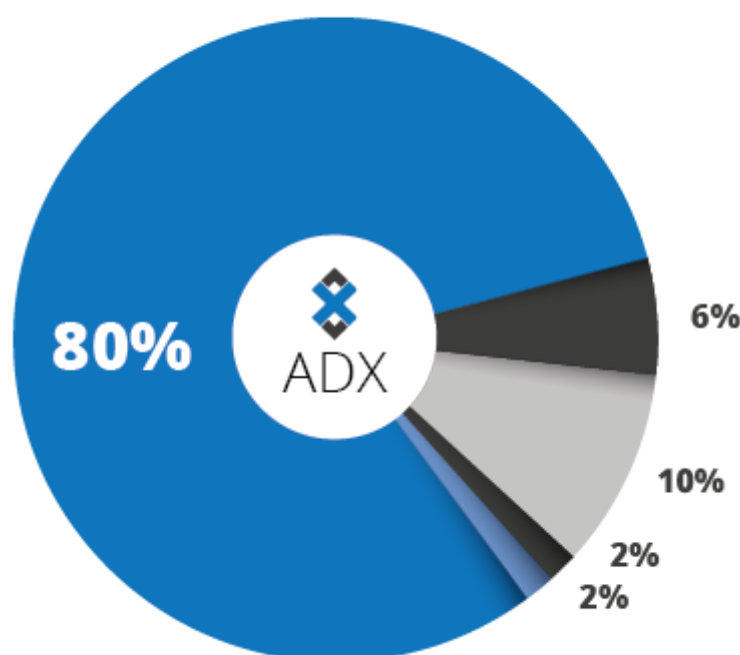


- **Software Development: 45%** of the budget will be allocated to the core AdEx development team, to fund creating the initial prototype and then necessary improvements to achieve significant adoption; this also includes costs for independent security audits
- **Business development: 20%** of the budget will be required for business development, in order to attract more publishers and advertisers and gain traction ; this will require attracting business development/adtech specialists
- **Marketing: 20%** of the budget will go driving awareness to the AdEx project to raise awareness and attract a significant number of open-source contributors and build the community around the project
- **Legal and administration: 10%** - most of which will be allocated for developing a solid legal framework for the AdEx network; a minor part of that will go to administration/accounting
- **Contingency: 5%** - set aside for unforeseen costs

Terms

ADX token allocation

- **10%** will go the AdEx Team and will be vested for 12 months with a 3 months cliff
- **6%** will go the AdEx advisors and will be vested for 12 months with a 3 months cliff
- **2%** will go to WINGS DAO - discovery, valuation, social promotion
- **2%** will be set aside for a bounty program, such as bounties for translating the white paper
- **80%** will be available for sale to the public in the upcoming token crowdsale



Bounty program

Half of the bounty tokens will be allocated before the crowdsale, and the other half during or after the token sale.

Of the 2% tokens allocated for a bounty program:

- **25%** will be given to translators
- **15%** will be given for to the bitcointalk signature campaign
- **10%** will be given for the Facebook campaign
- **10%** will be given for the Twitter campaign
- **40%** will remain for additional rewards, such as other types of promotion

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