



ACQuire Chain

Whitepaper



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Introduction

BinoScan Chain Fintech startup is an innovative alternative electronic payment system, which combines the advantages of the existing payment systems with the leading blockchain technologies.

Blockchain can be rightfully considered a technological revolution of the last decade and its first practical application, Bitcoin, was supposed to revolutionize e-commerce as well as electronic payments. As we already know, it didn't happen. Instead, there were many other cryptocurrency projects and a relatively small community worldwide. Regulatory troubles and scams in combination with exchanges' hacks have led to serious marginalization of the industry and a loss of interest from the potential customers.

The BinoScan Chain platform emits system tokens, pegged to a certain currency (for example aUSD, aEUR, aBTC, aETH, ZIG) according to currency corridor principle. System token BNC is not intended for end user payments, it is rather a technical unit of account of the system itself. BinoScan Chain relies on the developed payment gateway network, which allows users to access both fiat (fiduciary) currencies as well as the main popular cryptocurrencies. The advantages of this approach are especially evident in cross-border transfers, since the typical bank transfer is carried out not only from one currency to another, but also within different jurisdictions, which increases both the number of third parties and regulatory authorities.

BinoScan Chain bridges the gap between the real e-commerce needs and the reality of the cryptocurrency ecosystem. It is enough to simply register a basic account to make any payments in the BinoScan Chain ecosystem and to receive all the advantages cryptocurrencies provide (absence of censorship, speed, cheapness, anonymity) without losing the convenience, simplicity, reliability and familiarity of the classic fiat payments such as credit card payments or bank transfers.

Nowadays, many large corporations are competing with banks for control over the alternative payments. They are targeting customers' habits data such as purchases, travels, and loyalty program participations. BinoScan Chain will help its users to establish proper anonymity, without giving up on benefits provided by loyalty programs.

E-commerce is booming at the moment. Buying something online became a familiarity, even routine. There is an abundance of methods of payment when it comes to goods and services purchases (online retailers' payment systems, P2P transfers, Internet acquiring, etc.). Nevertheless, the market is still far from the saturation and the new payment systems may be demanded, as retail customers are looking for more convenient payment methods, and businesses for more effective mechanisms for bills and payment processes. BinoScan Chain is prepared to provide the variety of new technological solutions which did not previously exist within the framework of any other payment system. We will list a couple of them below.

From a technological point of view, BinoScan Chain is a global decentralized network for instant payments without the problems of scalability, focused on security, performance and cost minimization. BinoScan Chain offers its users a multi-level system of accounts (basic and

premium) with different administration capabilities (personal accounts with resource management, corporate accounts, accounts for hosting smart contracts, etc.)

Payment systems should be easy to use. Potential clients are often scared away by the new products' possible difficulties. Therefore, BinoScan Chain strives to provide its customers with the variety of different opportunities for working with digital and tokenized assets (digital assets, digital goods and digital services), which are not implemented in any other electronic payment system. BinoScan Chain offers its users a developed ecosystem of mobile wallets, desktop applications, blockchain applications with PoS terminals and much more.

BinoScan Chain will provide original smart wallets, which would help users to select the best exchange rate, best exchanges and assist them with banking operations. There will also be special apps for clients and loyalty programs. Smart wallets could potentially be used to pay for services such as downloading music, ordering taxi, apartments, food, etc.

BinoScan Chain does not follow the footsteps of other cryptocurrency blockchain projects, many of which in a short time of their existence have either closed, leaving their investors with losses, or evolved into closed communities with their own leaders, fans, enthusiasts and attributes. BinoScan Chain rejects the path of financial escapism and aims to help the e-commerce by providing products and services required by the current state of the market.

Background & Overview

The history of e-commerce dates back to 1990s. Over the last 30 years, its growth was largely uneven with the latest decade being the most prominent. Throughout this time, e-commerce's role in the retail sector has significantly increased. In 2019 it accounted for 14% of the global retail sales at \$3.5 trillion¹.

Worldwide e-commerce retail sales from 2014 to 2023
(\$ billion)

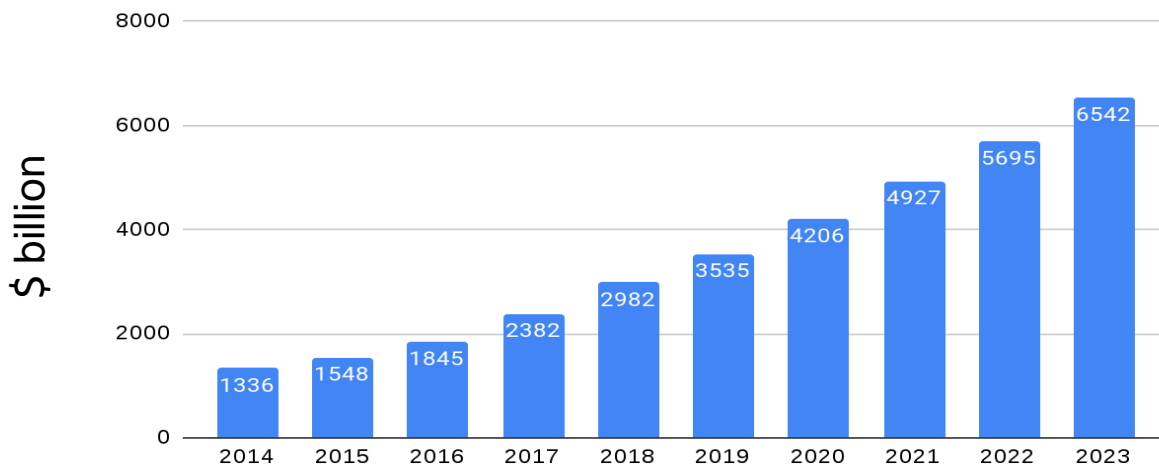


Fig. 1¹

If you extrapolate the data from 2014-19, it appears that by the end of 2020, global e-commerce sales will amount to \$4.2 trillion (Fig. 1), gaining 16% of the total retail sales share and continue to grow further throughout the 20s.

Rapid growth rates are associated with several factors. We can identify the world economy's globalization as well as internet's and mobile communications' propagation as the leading causes of this growth. Multiple payment systems in place make it possible to pay for goods and services with a banking card and/or electronic money online via apps or PoS terminal.

The most common international payment systems are Visa and MasterCard, dominating this sector. They account for almost half of all online payments in the USA. However, they are not without their flaws. A small selection of currencies for cross-border payments (virtually only euro and dollar), centralization, large fees (depending on the payment's type) and many others. In addition, a typical MasterCard or Visa transaction requires at least four parties (not including the payment provider itself) – the buyer and seller as well as the issuing bank and the bank acquiring the payment. Thus, if a buyer does not have a bank account, or their bank does not

¹ <https://www.oberlo.com/statistics/global-ecommerce-sales>

² <https://www.bigcommerce.com/>

have a license to issue cards, or if MasterCard and Visa do not serve banks in this region, the buyer is forced to look for the alternatives.

Global market customers use various regional and national payment systems or other means of payment such as PayPal in the USA, AliPay and Union Pay in China, Boletos and local credit cards in Brazil, direct debit cards from SEPA, SOFORT, and GiroPay in Germany. PayPal is of a particular interest, since there are more than 254 registered users worldwide and it is used by more than 17 million enterprises.

Now let's consider the dynamics of mobile payment industry. According to studies, this market was valued at about \$1.1 trillion in 2019 and it is expected to reach \$4.7 trillion by the end of 2025. The main market players are PayPal, Samsung Pay, Apple Pay, AliPay and WeChat Pay³.

In 2018, 55 million people in the United States used smartphones to pay via PoS terminals. These 55 million users account for about 20% of the US population aged 15 years and older and just over 25% of all smartphone users in the United States⁴. Mobile payments' volume in the United States grew by 50.6% from 2016 to 2017, by 42% from 2017 to 2018, and, according to predictions, will rise by 36.6% from 2018 to 2019. In comparison, 22 million users in the UK manage their bank accounts from smartphones. CACI's analytic predicts that by the end of 2023, around 35 million people (72% of the UK's adult population) will use apps to access banking services.

Mobile payments transaction volume (\$ billion) Worldwide (blue) vs USA (red)

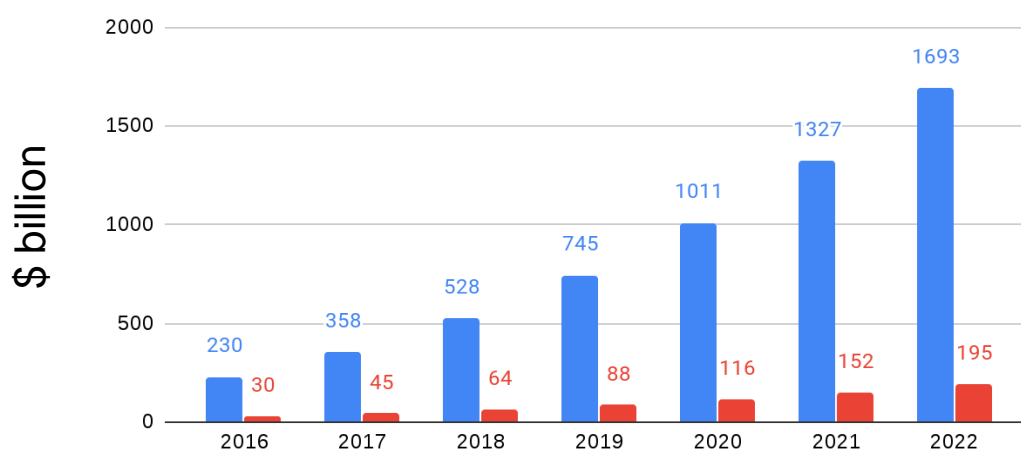


Fig. 2⁵

³ <https://www.mordorintelligence.com/industry-reports/mobile-payment-market>

⁴ https://www.electran.org/wp-content/uploads/MPC_StateofMobilePayments-Report-FINAL.pdf

⁵ <https://www.paymentscardsandmobile.com/the-future-of-us-mobile-payments/>

According to Statista Digital Market outlook (Fig. 2), by 2020 the volume of mobile PoS payments will exceed \$1 trillion worldwide, and \$115 billion in the United States.

In contrast with optimistic forecasts for the traditional payment systems, the prospects of cryptocurrency industry appear to be dimmer. Capitalization's explosive growth was followed by a large decline and sluggish recovery throughout 2017-2019 (Fig. 3). However, according to the recent quarterly report from Charles Schwab in 2019⁶, millennials invested in Grayscale's Bitcoin Trust (GBTC) twice as much as in Netflix stock. At the moment, GBTC is the only opportunity for investors if they want to trade bitcoin at stock market. Grayscale raised \$607.7 million in 2019, exceeding the total from 2013 to 2018 combined. Moreover, the investments in Grayscale instruments have reached \$1.17 billion. In 2019 Grayscale expanded their investor base by 24%⁷.

Thus, we can assume that at least with respect to Bitcoin, the investment volume will not decrease, however the investors became more cautious when choosing their investment instruments. Thought let's not forget that bitcoin was originally conceived as a mean of payment. This relates to other cryptocurrencies as well. Even Satoshi Nakamoto's⁸ original paper is titled: "Bitcoin: A Peer-to-Peer Electronic *Cash System*". Let's discuss this in details.

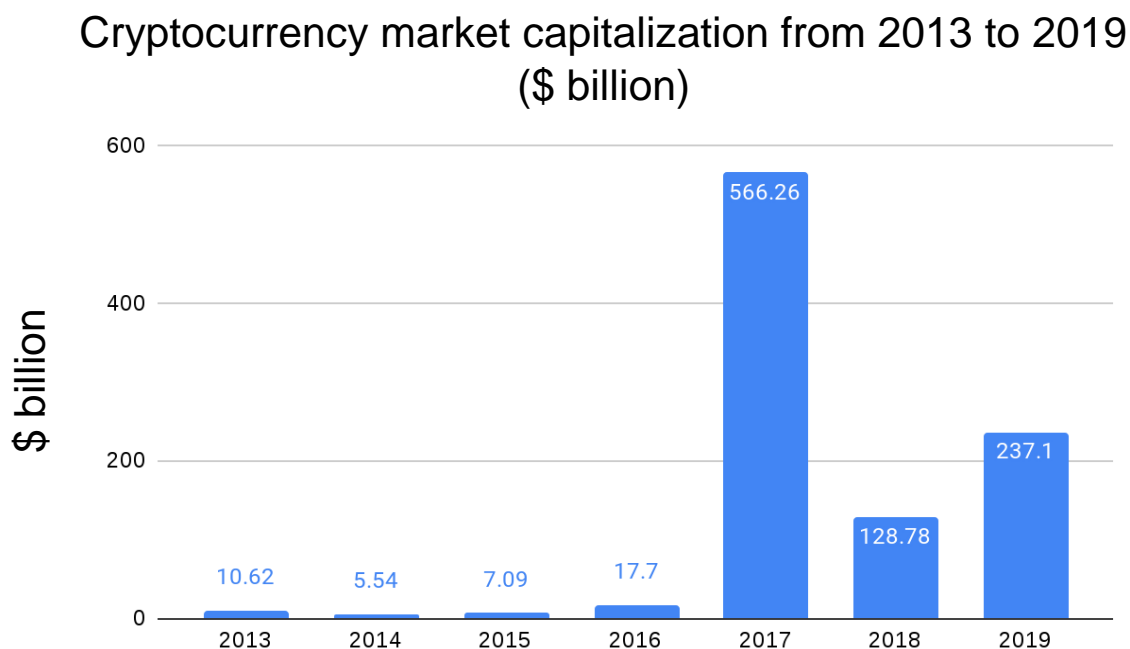


Fig. 3⁹

⁶ <https://www.theblockcrypto.com/post/49451/bitcoin-more-popular-than-netflix-stock-among-millennials-gbtc-one-of-their-top-5-equity-holdings>

⁷ <https://grayscale.co/insights/grayscale-q4-2019-digital-asset-investment-report/>

⁸ <https://bitcoin.org/bitcoin.pdf>

⁹ <https://www.statista.com/statistics/730876/cryptocurrency-market-value/>

It should be noted that there have been no significant studies regarding the retail applications of bitcoin and other cryptocurrencies. However, some information is available. In 2018¹⁰ and 2019¹¹ there were studies published about the payment methods among the retailers in Netherlands, conducted in November-December 2016. Similar scientific works in other regions do not exist with such degree of systematization. However, we can assume that the motivation of retailers is similar in other regions. According to these studies the number of online retailers that accepted crypto in 2016 did not exceed 6%.

Most of the retailers (79% of the respondents) converted cryptocurrency they owned into euros. A significant amount of retailers (42%) began to accept cryptocurrency in order to attract new clients or because clients themselves asked them to (23%). Therefore, the reasons for introducing new payment methods were not the ones crypto enthusiasts usually cite when asked about the advantages of cryptocurrency payments over other methods, namely: reliability, low fees, anonymity, etc. Only 9% of the retailers referred to security considerations as the reason not to accept cryptocurrency.

Moreover, most of the retailers are prepared to accept cryptocurrency if payment service providers (PSP) take over its processing and conversion. This means that low transaction speed, scalability problems, high volatility and other disadvantages of cryptocurrencies are not in fact the reasons hindering their introduction as a payment method. The most significant factor, limiting the usage of cryptocurrencies in retail, is low consumer demand. Those who own cryptocurrency themselves, are not interested in using it as a mean of payment.

In conclusion, we can say that creating another cryptocurrency as a payment method will not peak retailers' interest if it is unable to attract new customers, if it is not going to be used for payments and if retailers will have to deal with exchanging and selling it themselves.

¹⁰ <https://www.ssrn.com/abstract=3134404>

¹¹ <https://linkinghub.elsevier.com/retrieve/pii/S1567422319300250>

Purpose

Electronic payment system industry's dynamics, as well as the amount of investments attracted by FinTech startups, demonstrate the demand for new payment platforms and technologies. Blockchain provided us with an option to make payments, bypassing the existing banking system. It is obvious that blockchain technology is much more than just a bitcoin or a cryptocurrency. Protected from arbitrary and accidental changes, the decentralized, permanent nature of blockchain makes it perfect for reducing costs and optimizing payments, asset trading, issuing the securities and assisting in retail banking operations.

The basic principles, upon which the BinoScan Chain project was built, reflect the values we offer to the electronic payment industry:

1. Security – we will utilize the blockchain technology to ensure the security of every transaction in the system
2. Transparency – we would like for our system to be transparent to our users and open to new participants, who can potentially bring even more value to this ecosystem. This would lead to trust, fairness and high scalability
3. Confidentiality – we care about the privacy of our users. Personal data, irrelevant for payments, will not be stored in the open part of the registry.
4. Convenience – we aim to provide a solution with minimal obstacles for entrepreneurs, so they are not required to completely restructure their companies in order to introduce a new payment method. We would like to make payments between buyers and sellers simple, transparent, fast and secure.
5. Flexibility – our multilevel account organization system allows to manage multiple digital assets, set access and operation restrictions, create recurrent payments, issue loans and much more.

Project's structure

BinoScan Chain project is designed to provide a simple and reliable connection between individual services and smart contracts as well as their connection to blockchain. We can highlight a number of structural components:

1. ACQC system smart contract – maintains user accounts and balances. It manages the transactions' real time flow, low level operations with the BNC system token and blockchain operations.
2. Service smart contracts – additional applications provided by ACQC with access to various blockchains and external services. These include: Relays, accepting the payments, Oracles, confirming the payments and Gateways through which cryptocurrencies can be withdrawn or exchanged.
3. Payment interfaces – various ways users can interact with ACQC. These include: Business Web Dashboard and BNC Business, PoS integration and other services.
4. BNC wallet – while it is possible to use any application for payments, BNC mobile wallet is specifically designed to make payments in the ACQC system simpler and faster.
5. After Relay receives cryptocurrency from user and Oracle confirms it, the ACQC system smart contract credits the appropriate funds to the seller's address. These funds are issued by ACQC in the form of tokens, pegged to the specific currency (bUSD tokens, bBTC tokens, etc.). These tokens can be converted to fiat with the help of Gateways.

Project provides two types of Payment Gateways – Crypto Gateways and Fiat Gateways. Crypto Gateways will be global and will not charge additional fees. However, since payment conditions vary from country to country, Fiat Gateways will be regional and could charge an additional fee for their services. Users will be able to choose Fiat Relays based on their personal preferences.

BinoScan Wallet fully supports a flexible model (multiple accounts with different addresses on the same wallet), allowing user to make payments for a small fee (or without it) and avoid complicated settings. New users will be able to create accounts and accept payments for free.

Let's briefly discuss the account's structure. There are two separate types – Basic and Technical.

1. Basic is the main account type. It does not have any specific requirements. It is enough to simply create a public key (in the BinoScan Wallet for example), which will be used by ACQC as an address. The new account is added to the block producers' database after the first transaction from this account is recorded in blockchain. Basic accounts are visible in the BinoScan Chain block explorer.

2. Technical account has the same features as Basic account and a unique name. These accounts are not visible in the BinoScan Chain block explorer. They are primarily used to place smart contracts with business logic and/or token smart contracts (AUD, AEU, etc.)

Blockchain architecture

BinoScan Chain project has proposed a number of original blockchain-based solutions for the provision of payment services. BinoScan Chain network consists of independent nodes. In theory, all of these nodes are equal and equivalent. However, nodes' purpose varies significantly. According to performance, scalability and speed optimization protocol, only a part of nodes can participate in blocks' creation and their addition to blockchain, thus implementing a Proof-of-Stake consensus.

Nodes, involved in blocks' creation (and the ones that change the state of blockchain), are called block producers. The remaining (pending) nodes are utilized to provide users network access (electronic wallets, block explorer and other applications) and act as the replacement in case the current block producing nodes stop working or work incorrectly.

BPs are required to produce blocks every half a second in order that randomly changes at certain time intervals, called rounds. Each round lasts 126 seconds. During this time, each block producer is able to produce several (depending on the number of producers) blocks. BP may skip a turn in a round, but it has to produce at least one block throughout twenty-four hours' period. If they do not, they are replaced with another pending node.

Each block contains a list of transactions – messages with a special structure. Block is digitally signed with a key known only to a block producer, after which at least two thirds of the block producers must also verify it. The block is added to blockchain once it is confirmed. Block producer signatures are easily verifiable and can be verified by the pending nodes. Once added to blockchain, the contents of a block cannot be changed and transactions cannot be cancelled.

User transactions are a data structure, which can be represented in the following table:

“from”:	ACQ7synPBeimC1j4ASX4ZGGqc5uFiCtHioLbLSugdTjkkL4Ad5RDR
“to”:	ACQ5zSK5ZjQooPjWipjHNqiyHHExxBnQTt5g3JpYinevzFtjuQFnq
“quantity”:	1.0000 AUD
“memo”:	Test OK
“sign”:	SIG_K1_KXnmAh2av9vijb1sWFvkCnzVhQwyfXha4jn8sgSh5joLnTUfMk5YQy9 L9EHE8gLG6fkQsZbpLydy9NCEb7asjzssvKrMjh

As you can see in the example above, users are represented by their addresses in blockchain. Each user can check their balance via the special web application – BinoScan block explorer. Addresses can be generated autonomously with the publicly available program. Any user can create an almost unlimited number of addresses paired with the private keys for free. The address will be added to blockchain once the first transaction is complete. In addition, a special one-time number, nonce (number used once), is associated with each user, which changes with every new transaction.

This is necessary to avoid the reuse of transaction's digital signature, making each individual transaction unique. Public key cryptography, used by BinoScan blockchain, guarantees the impossibility of falsifying a digital signature. BNC internal tokens are used to select (vote for) block producers and distribute network's resources. These tokens have no value otherwise and will not be used as a cryptocurrency.

Our partners

ZigZag.Finance and InternetCashBank will be the acting partners of BinoScan project.

ZigZag:

BinoScan chain is built on ZigZag's smart contracts. Tokens Zig and Zag will be transferred from the main EOS network into the BinoScan network. In the BinoScan network, Zag's soft node holders will act as a decentralized bank, having an option to issue loans, secured by cryptocurrency. The reliability of loan's issuance and preservation of collateral will be guaranteed by the collateral value of the node. There will be 65 soft nodes in total. Stablecoin Zig will act as the main credit coin and it could be exchanged into any other system coin and withdrawn via any of the existing gateways.

InternetCashBank:

BinoScan network is not a typical blockchain. With the help of InternetCashBank's technological platform, BinoScan connects all kinds of financial gateways and allows its users to quickly, safely and conveniently manage their finances. InternetCashBank provides a solution for financial services built on BinoScan Chain project.