

MONOECI.IO

WHITE PAPER





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THE MONOECI BLOCKCHAIN ECOSYSTEM & VISION

The vision of Monoeci is to provide a secure and trustless blockchain system that facilitates the transfer of assets. Our ambition is to become the next economic model based on a fair governance system.

Monoeci wants to use the following core benefits of blockchain technology to improve daily transactions in every sector that requires an asset transfer:

- Transparency
- Integrity
- Economic efficiency
- Traceability

With this in mind, Monoeci aims to build the bridge between blockchain technology and the real world economy by bringing together a large number of Monegasque businesses and providing them the tools to operate within the Monoeci Blockchain ecosystem :

- Wallet
- Payment terminals
- Web and mobile applications
- ATMs

The Monoeci Blockchain system will allow the following operations:

- Exchange payments between parties
- Asset transfer (Real Estate, Financial, Tourism, etc...)
- Rewards the community for participation in the network
- Private and/or public transaction services
- Crowdfunding
- Charity donations
- Supply chain management

Developments designed to bolster the Monoeci ecosystem are already underway as well as plans for significant development in the future (see *"Achievements & Roadmap"* section).

Monoeci is designed for anyone who wishes to embrace the new economy.

CURRENT OBSTACLES FOR ECONOMIC TRANSACTIONS EFFICIENCY

Monoeci's team has identified the key problems that reduce economic transaction efficiency in strategic sectors. We believe that the use of blockchain technology is a long term factor for economic development. It will offer inexpensive, secure, efficient, and fast asset transfers.

CURRENT LEGACY FINANCIAL PROBLEMS

High cash withdrawal transactions fees

Traditional banks charge high withdrawal fees based on the home city of the customer. Blockchain technology, on the other hand, allows customers to deposit and/or withdraw funds in their local fiat currency without suffering the expense and difficulty of making international payments.

Loss of value in monetary conversion

The existence of multiple foreign currency accounts exposes the user to the currency exchange risks. Indeed, each account has to be kept in the country's local currency. The currency exchange process usually generates a loss of value during the conversion from domestic currency to foreign currency. Moreover, the financial intermediaries charge high fees for this currency conversion.

Foreign inbound remittance

Remittance is a financial service which involves the transfer of money earned in a foreign country by foreign workers back to their home country. The current foreign inbound remittance market is dominated by companies such as Western Union and MoneyGram. Market share for this industry is about \$500 billion every year. They charge high fees and face technical process difficulties. According to finder.com, the global average fee rate is 7.14 percent¹. The World Economic Forum has also highlighted that remittance fees need to be cut².

As a well known international hub, Monaco is concerned with foreign inbound remittance considering that in 2016 there was a total of 139 different nationalities living in Monaco for an estimated population of 37,308 people³.

Blockchain technology can solve these traditional financial issues. **Monoeci's solution offers to significantly reduce the transaction cost and process payments quicker and more transparently.**

Cross border payment inefficiency

Cross border payments are key components of the global economic landscape. Indeed, they generate almost 50 percent of transaction related revenue for only 20 percent of the total transaction volume in the worldwide payment industry. The value of cross border transactions is expected to increase significantly in the next five years from \$20.5 trillion to \$54.8 trillion.

The current cross border payment model has come under pressure from the following groups:

- Customers: they request real-time, agile, cost reduced, and custom cross border payment services. Moreover, multinational companies operating across different countries require fast settlement of cross border payments. According to a Glenbrook study, only 10 percent of corporate payment initiators were "very satisfied" with their current cross border payment service⁴.

1. <https://www.finder.com/remittance-fees-global-world>

2. <https://www.weforum.org/agenda/2015/03/why-we-need-to-cut-remittance-fees-now/>

3. <http://www.monacolife.net/census-results-show-growth-in-monacos-population/>

4. <https://www.earthport.com/wp-content/uploads/2014/02/Cross-Border-Payments-Perspectives-A-Glenbrook-Earthport-Research-Brief.pdf>

- Regulators: regulations, such as the Second European Payment Services Directive (PSD2), which promotes open systems and compliance, is driving up the cost of cross border payments⁵.
- Competitors: increased competition from FinTechs and other third-party providers drive digital innovations. They offer new attractive payment solutions.

The current cross border payment model suffers from many issues:

- Expensive: Cross border payments are more expensive than domestic payments, and it is often difficult to assess and deduce charges incurred through multiple corresponding banks. The average cost is between \$25 and \$30.
- Slow processing time: each transfer passes between a number of financial intermediaries and takes more than 3 business days.
- Lack of transparency and auditability adds to the cost and processing time.

REAL ESTATE PROBLEMS

The world real estate market was worth \$217 trillion in 2016 worldwide and nearly 2.7 times the world's GDP (Savills, Around the World in Dollars and Cents. 2017). This is worth more than the \$8.6 trillion housing market. According to Global Construction Perspectives and a PWC's survey, by 2020, the world's housing market will be worth \$15 trillion.

The major difference between real estate and other asset classes, such as equity, is liquidity.

Indeed, real estate markets have incredibly slow transaction times and less efficient price discovery mechanisms. This is why significant capital is frozen in less liquid investments. Investors with excess liquidity suffer substantial obstacles when investing in foreign real estate and often miss the opportunity to invest in such assets.

Monaco is the most expensive city in the world⁶ in real estate prices (nearly €70,000 per square meter). The price of the most expensive apartment in the world is located on the roof of the Odeon Tower and is worth more than €300 million.

The current real estate market model suffers several problems:

- High transaction costs
- High threshold for entry
- Lack of liquidity
- Lack of price transparency
- Slow and complicated process of ownership transfer
- Risks of fraud
- Complications of cross border transactions

These issues have been addressed a few times in history. New investment vehicles have been created which solve some of these problems. However, there is no absolute solution and the real estate market is still one of the most inefficient asset classes.

5. <http://www.bankingttech.com/1019442/psd2-the-tip-of-an-open-banking-api-iceberg>

6. <https://www.statista.com/chart/4618/the-most-expensive-m2-of-prime-property-in-the-world/>

TOURISM MARKET PROBLEMS

The travel and tourism sectors have entered a new era of growth and transformation. Global business and leisure travel spending hit a record breaking \$1.2 trillion in 2015, up five percent from the previous year⁷. In 2016, 76.8 percent of all travel spending was as a result of leisure travel, compared to 23.2 percent from business travel.

Travel and tourism is an export sector, attracting foreign spending to the country in the form of international visitors. In 2016, global visitor exports accounted for 6.6 percent of total world exports (a total of \$1.2 trillion) and almost 30 percent of total world services exports. The global travel and tourism industries contribute \$7.6 trillion to the world GDP and is expected to grow at an average of 3.9 percent per year from 2017 to 2027⁸.

The geographical location of Monaco and its Mediterranean climate have made the Principality a destination popular with tourists. Tourism is mainly composed of luxury customers attracted by sporting events (ie: Formula 1, football), cultural events, and casinos (such as the Casino de Monte-Carlo). However, the business tourism sector, conferences and seminars, grew significantly and now represents 26 percent of Monaco's total tourism⁹.

The tourism industry still faces some issues such as:

- High currency conversion fees
- Slow transactions process
- Limitation in respecting specific amounts
- Security of money

This situation highlights the need for a new means of payment within the tourism industry: fast, secure, and with minimal conversion fees. The World Travel & Tourism Council confirms this statement by suggesting: a drastically simplified payment method, expanding the range of payment options, and by providing full transparency into costs and fees.

Monoeci leverages advantages from blockchain technology to offer a new cost effective and transparent global payment system. Moreover, Monoeci will allow its users to avoid high bank fees associated with withdrawing money or using credit cards in foreign countries.

PRIVACY ISSUES

The concerns related to data privacy have been increasing rapidly these last few decades with the creation of the Internet and social networks. Because of privacy issues, citizens are not confident in the way their personal data is collected and perhaps, used, in an unethical way that may result in them facing real world consequences

Companies, institutions, and third parties collect information about their customers in order to understand their purchases, life, and emotional trends. At the moment, the personal data they own can be sold to other entities or leaked.

The payment sector is evolving fast, and companies like Apple and Google are launching their services (Apple Pay, Google Pay, etc...). The privacy of our daily financial life is going to be questioned more and more.

7. Global Business Travel Association Press Release, June 11th 2016

8. <https://www.statista.com>

9. <http://www.monacohebdo.mc/16152-tourisme-daffaires-le-jackpot-pour-monaco>

DATA THEFT ISSUES

Security is a major concern of our current digital consumption. Companies own information about their employees and customers, including Social Security numbers, birthdays, payroll information, etc. There have been a lot of cases where hackers accessed and stole personal and financial information of customers from large corporations, such as Uber and Sony. This kind of attack will occur more frequently and remains a major problem for our digital society.

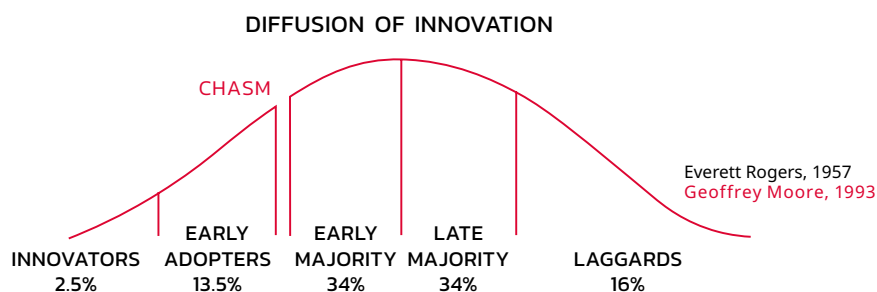
Data thefts can be exploited by criminals in order to take advantage of vulnerable people or discriminate against a group of people

BLOCKCHAIN MAINSTREAM ADOPTION PROBLEMS

Mainstream adoption is a key factor in ensuring the ease of use, innovation, and stability of the token market economy. Things are progressing quickly now compared to 2 or 3 years earlier. The millennial generation rapidly embraces new applications that ease their life. However, many technical and regulatory framework problems delay the adoption of Bitcoin.

The adoption speed of a new technology is one of the most challenging economic questions. According to The Economist on 31 October 2017, "The technology behind Bitcoin could transform how the economy works". However, the diffusion of innovation can take a while. This diffusion cycles through 5 phases as it becomes adopted by users in a social system.

This theory was put forth by Everett Rogers in the middle of the twentieth century. This theory explains how, why, and at what rate new ideas and technologies spread. Rogers argues that there are several elements which influence the spread of innovation: time, the innovation itself, communication channels, and the social system.



The application of this theory to the adoption of blockchain technologies reveals that we are at the end of the Early Adopters cycle which began in 2013. We are going to enter in the Early Majority cycle at the end of this decade. Monoeci aims to follow the Diffusion of Innovation theory by providing all the necessary tools to build an ecosystem offering the best experience to all users.

The market development analysis reveals that we are jumping into this new era. A concrete example of this is that the global cryptocurrency market cap has broken \$600 billion, nearly as much as the GDP of Argentina.

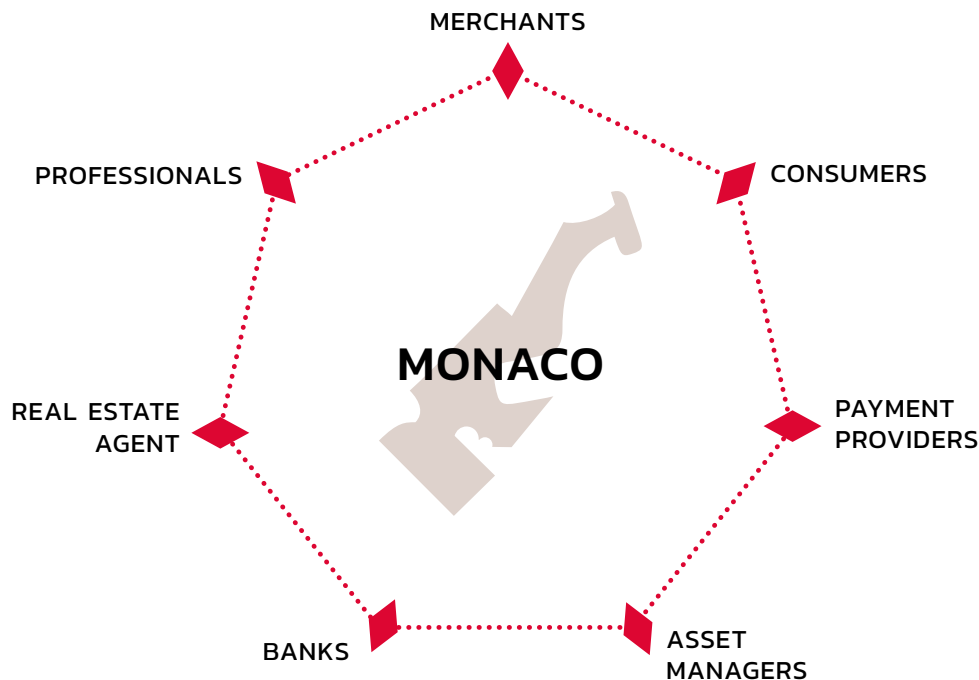
Total venture capital investment in blockchain activities reached a new high of \$ 1.1 billion in 2016¹⁰. The fast growth of the market could be explained through the effort being made by the financial industry to implement benefits from this highly promising technology. To conclude, there are an increasing number of organizations investing hundreds of millions of US dollars in blockchain technology projects. The new digital economy is coming.

10. <https://www.coindesk.com/state-of-blockchain-q1-2016/>

THE MONOECI SOLUTION

The main objective of Monoeci is to provide a reliable distributed protocol allowing asset transfer in a safe, trustless and easy way, thanks to blockchain technology.

Monoeci's strategy is to establish a strong presence in Monaco and offer a new way of doing business for all the economic sectors dealing with the Principality



To achieve this goal, we are building significant interest and excitement about Monoeci. We will drive **consumer adoption through a physical presence** in merchants and industry players (real estate agents, banks, payment providers, tourism services providers, etc...) and **an online presence** in their e-commerce websites.

With this in mind, we aim to build a large base of industry players, such as merchants, in order to ensure that consumers will see the presence of the Monoeci brand. We will **build a two-sided demand**, which means the demand comes from both **consumers and companies**.

The international status of Monaco makes it the perfect place for widespread adoption of Monoeci. Monaco is an international hub with a high influx of business and travel connections with foreign countries. Millions of dollars are transferred into and out of Monaco and the cost of processing these transfers charged by financial providers means that the Monoeci transfer option is very attractive.

Monaco is rising to the 3rd class of the world ranking GDP per capita compared to the value of their annual GDP in 2015 with other countries such as Luxembourg (\$102,881), Switzerland (\$78,813), Norway (\$74,735) and Qatar (\$73,653). The **Monaco GDP per capita amounts to \$170,811**.

Monaco has established links with most of the international organizations of reference, which allows it to amplify the scope of its influence despite its small size. Multiple agreements and treaties bind Monaco, whether bilateral or multilateral signatures. Thus, the voice of Monaco is doubled of commitments that often interest areas crucial to the future of the international community.

Monaco is an attractive international financial place. Insurance and financial sectors are the main contributors to the Monegasque Gross Domestic Product¹¹. Two thirds of the assets under management of Monaco based financial institutions, banks and management companies, consist of funds of foreign origin. Moreover, two thirds of the accounts belong to non-residents. Monaco is highly involved in international finance.

The presence of extensive travel infrastructure puts Monaco within two hours of the main European capitals. Monaco benefits from the proximity of the Nice-Côte d'Azur Airport.

Monaco wants to provide a favorable regulatory environment for the development of a new blockchain ecosystem in order to attract companies searching for a flexible, modern, and pragmatic regulatory framework.

The Principality's National Council passed on December 21st a law proposal regarding blockchain technology and cryptocurrencies¹². Monaco will be a pioneer within this space.

Moreover, **Monaco intends to create a blockchain dedicated authority** (Monegasque Blockchains Authority) which will be responsible for enforcing legislation and regulations, for informing the public, and promoting experiments conducted in Monaco.

Monaco's territory contains all the necessary conditions to succeed in increasing confidence in blockchain technology making Monaco the most competitive international blockchain hub.

Monoeci's Blockchain ecosystem will provide a fast, secure, private, and entirely decentralized network, underpinned by Monoeci's token, XMCC. One part of the Monoeci's goal is to make XMCC available to as many people as possible.

Aware that working closely with and discussing regularly with the authorities is important, the Monoeci team has established a transparent and continuous exchange with government representatives in order to introduce and define the Monoeci project as well as future opportunities for Monaco. This channel of discussion allows us to occupy a place of first choice as the primary blockchain as it develops in the Monegasque ecosystem. Although we developed a close relationship with the Principality, in order to avoid any misunderstanding, Monoeci is an individual initiative not officially endorsed by the Principality.

11. Monegasque Institute of Statistics and Economic Studies (IMSEE) 2017 Annual Report

¹¹<http://www.gouv.mc/Action-Gouvernementale/L-Economie/Analyses-et-Statistiques/Publications/Partie-Economie-du-monaco-en-chiffres>

12. <http://www.conseil-national.mc/index.php/textes-et-lois/propositions-de-loi/les-propositions-de-loi-en-cours/Item/600-237-proposition-de-loi-relative-a-la-blockchain>

MEANS OF PAYMENT

Monoeci Wallets

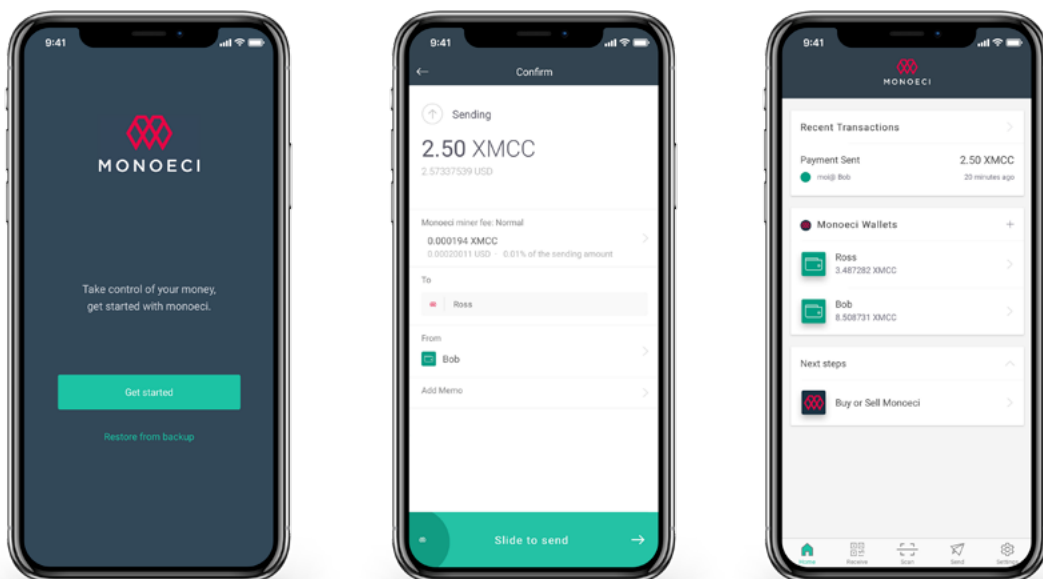
The Monoeci network is accessed through different types of wallets. Monoeci's core development team aims to deliver mobile, web, and desktop wallets, all available on the [official website](#).

Because almost 65 percent of all Internet traffic goes through mobile devices and tablets, it seems obvious to offer a mobile wallet that will complete secure, instantaneous transfers of XMCC. The token is used in a decentralized economy across a variety of commercial avenues.

Monoeci's mobile wallet is available for Android devices. The mobile wallet will give users full control over (i) their financial data and (ii) their funds as well as many other monetary features (such as barcode payment recognition) accessible globally as time goes on and future retail opportunities present themselves.

Monoeci wallet key features:

- Multi-address support
- QR code support
- Transaction history
- Custom security features
- Quick sell functionality
- Live price display
- Shared wallet (multi-user) support



At this stage, the core development team has developed the mobile wallet only for Android. It provides a secure and fast mobile connection with the Monoeci Blockchain. The Android wallet is available for download from the [Google play store](#). Apple is reviewing the application at the moment, it will be available soon.

The Monoeci core development team will continually maintain and update the wallets in order to ensure that they continue to offer the best experience in a safe and secure way.

Monoeci ATMs

Monoeci's team will provide and install Monoeci Automated Teller Machines (ATMs) into merchant stores based in Monaco. The ATMs will offer conversions between fiat currencies (EUR, GBP, USD) and XMCC.

This a major step for the development of a real blockchain ecosystem in Monaco. The ATMs will improve the visibility of and access to the Monoeci ecosystem for customers and merchants alike.

The ATMs will meet the highest quality and safety standards while requiring very little maintenance. The merchants will just have to find the right location with a power and Internet connection.

ATMs will accept buying XMCC with fiat currencies. The process will need the customer's mobile wallet or paper wallet to retrieve the customer's address as a QR code.

ATM Key features:

- No prior experience or technical expertise needed
- Lowest fees
- Monoeci's wallet can be used at these machines
- Support for multiple digital currencies



Monoeci plans to continue developing new hardware and software, embed additional payment methods, maintain the infrastructure, comply with regulations, and other business related activities that Monoeci customers have come to expect.

Monoeci payment terminals

Monoeci's core development team aims to provide a debit card which will allow users to spend XMCC directly without the need to use their Monoeci wallets. Along the same line of thinking, merchants will be able to receive payments with XMCC through payment terminals.

MONOECI TECHNOLOGY SHOWCASE CENTER

Monoeci will create at the heart of Monaco a **unique technological showcase and expertise center** for all the stakeholders of Monoeci's community, such as customers, citizens, merchants, companies, and partners. The Monoeci center will enable visitors to learn about and improve their user experience with the Monoeci Blockchain ecosystem and to showcase new advances in Monoeci's technology and products.

The Monoeci Technological Showcase Center will be composed of two main components: Monoeci's House and an association.

The purpose of the Monoeci House is to encourage the mainstream adoption of Monoeci by establishing a physical presence in order to promote and educate new adopters by providing training programs, meetings, applications, and so forth.

The Association will provide regular meetups, networking sessions, a business club, offices, and more to spread its use and democratize its benefits.

An exclusive airdrop for each Monegasque is already planned for Q3 2018. It fits perfectly with the mainstream adoption and spreading of the technology.

MONOECI'S PARTNERSHIPS

Monoeci aims to build and develop strong partnerships with local organizations in order to establish the use of Monoeci in Monaco and to create a sustainable and virtuous ecosystem.

Monoeci will be used by many partners in Monaco from various sectors, such as tourism, real estate, luxury, payment processing, car rentals, restaurants, and more. Auto Konzept Monaco is a renowned luxury car retailer based in Monaco which is already willing to embrace Monoeci's token as an alternative payment method¹³. Customers will be able to buy and/or rent luxury cars with Monoeci.

Monoeci offers an opportunity for the tourism sector by leveraging the advantages of the Monoeci's blockchain system: global mean of payment, cost efficient, real time payment.

MONOECI CHARITY PROGRAM

Monoeci aims to help Monegasque associations to lead their environmental, human or charity mission. One of the fundamental values of the Monoeci team is to share the value created by the Monoeci ecosystem with actors that support noble causes.

We support the Prince Albert II Foundation, which works for the protection of the environment and the promotion of sustainable development on a global scale (biodiversity, renewable energies, water management, climate change, etc.)

Monoeci encourages all stakeholders of the Monoeci ecosystem, such as merchants and users, to freely reserve donations and contribute to support such noble causes. A gamification system (contests, donors of the month, ambassadors, etc.) will be created with interesting and fun rewards to sustain this virtuous and participative ecosystem which Monoeci heavily emphasizes.

13. <https://medium.com/@monoeci/auto-konzept-monaco-will-be-the-first-store-to-accept-monoeci-2085f3d1ad28>

MONOECI TECHNICAL ASPECTS

INTRODUCTION

Monoeci is a decentralized, open source blockchain protocol launched in July 2017. The project is based on Dash core 0.12.x, providing some interesting tools focused on privacy, transaction speed, and security. The protocol is using a native proof of work (PoW) consensus mechanism.

The Monoeci P2P network is composed of both masternodes and miners, allowing improved network growth, distributed governance rules, low transaction fees, and increased transaction privacy and speed.

Monoeci achieves near instant private transactions that help to sustain the network for the benefit of all users. We are working hard to add new features and abilities to ensure trustless capabilities.

PROOF OF WORK

Hashcash¹⁴ proof of work algorithm is used in Bitcoin for block generation and is based on expensive computer calculation/work called mining. On the Bitcoin Blockchain, full nodes are defined as *running instance of a Bitcoin daemon such as a Bitcoin core reference client*.

Miners running full nodes compete to verify and include transactions within the candidate block by finding the correct nonce.

The first miner solving the requested nonce receives all fees related to the transactions included in the block and also a reward for finding the block before other miners. Once the block is broadcasted across the network and validated by other miners, the block is stored on the public ledger and added to the previous chain of blocks, this makes up the Bitcoin "Blockchain". For a block to be valid, it must hash to a value less than the current target; this means that each block indicates that work has been done generating it. Each block contains the hash of the previous block to bind each block into a chain of blocks.

The main advantage of PoW is to protect the network from distributed denial-of-service attacks (DDoS) by requiring computational power to manipulate transactions and find blocks. This kind of attack would cost a lot of money from the attacker in terms of infrastructure and energy, useless at a certain point.

When a new blockchain network is launched, like Monoeci, we believe that it would potentially be very easy for current mining pools to attack it by bringing more than 51 percent of the computational power to the network. Realistically, it is not likely that an attacker would execute this attack because one, the payout from such an attack would be small and two, developers and the existing community could work to change the consensus rules and fork the existing chain.

The performance of a PoW blockchain is mainly based on two factors: block size and block frequency. Increasing the block size with the objective of boosting throughput comes at the cost of increasing the latency, resulting in longer propagation delays of larger blocks across the network. The possibility of temporary chain forks would increase due to the synchronization delay of the network. Moreover, double spending attacks¹⁵ can be more efficient with this configuration.

14. Back, A. (2002, August 1). Hashcash - A Denial of Service Counter-Measure. Retrieved from <http://www.hashcash.org/papers/hashcash.pdf>

15. Nakamoto, S. (2008, October 31). Bitcoin: A Peer-to-Peer Electronic Cash System. Retrieved from <https://bitcoin.org/bitcoin.pdf>

The block frequency could be increased to reduce the latency of multi-block confirmations, but unfortunately, spending to more frequent big blocks will result in the same issue of related to chain forks. A compromise is needed to limit these problems.

Mining concept

Mining computation power is an important element for widespread adoption by involving users to contribute to the safety and growth of the network. The users involvement and a strong community is a key element in sustaining an open source project and maintaining a decentralized network. Each person or entity using a computer has the ability to run a full node by connecting their device to the network. Participating in the mining process rewards participants for securing the network. Nodes are responsible for validating, relaying, and executing transactions on the network.

With the Bitcoin proof of work algorithm, Satoshi Nakamoto provided an elegant, secure, and reliable method of securing the Bitcoin network at launch, while solving issues like the double spend attack and by providing an incentive to users to store and maintain the network.

The current situation is different for Bitcoin, debates about switching proof of work to a proof of stake consensus algorithm has dividing the Bitcoin community. The market cap of Bitcoin hit hundreds of billions of dollars, raising media and government attention all over the world. The community has concerns about the security, privacy, and scalability issues behind the current Bitcoin protocol. The risk of mining and data centralization is undoubtedly a part of the scaling debate and remains a problem that needs to be addressed.



Network (GH/s)	Difficulty	Coin Supply (XMCC)
10679.8806	393984.7617518734	10631560.49945468

X11 Algorithm

X11 is a hashing algorithm created by Dash core developer Evan Duffield and launched in January 2014. The X11 hash function was developed in order to solve issues about Bitcoin, to bring more privacy, and improving mining decentralization as a way to combat ASIC devices. However, this prevention failed as ASIC producers were able to innovate around the limits of the X11 algorithm.

The X11 algorithm uses multiple rounds of 11 different hashes (blake, bmw, groestl, jh, keccak, skein, luffa, cubehash, shavite, simd, echo), thus making it one of the safest and most sophisticated cryptographic hashes in use by modern blockchain protocols.

Uncertainty among cryptographers is growing regarding the hashing algorithm family SHA after the break of SHA1 by Google in February 2017. Bitcoin is using a new generation of the SHA algorithm called SHA2 (256/512) designed with the same family hash function. In the case of a computing breakthrough that "breaks" the SHA256 hash function, the entire Bitcoin network could be jeopardized until the network hard forks to another cryptographic hash. In a similar event, X11 would continue to be safe and reliable.

Consensus Rules Parameters

Hash algorithm	X11
Total Monoeci supply	50,000,000 XMCC
Block time	120 seconds
Block size	2 MB
Block retarget difficulty	Every block
Block reward generation	Block 1 to 7,200 → Rewards allocated to the governance Block 7,200 to 270,000 → 10 XMCC Block 270,001 to 532,800 → 5 XMCC Block 532,801 to 1,058,400 → 3 XMCC Block 1,058,401 to 1,584,000 → 2 XMCC After block 1,584,001 → 1 XMCC
Block reward allocation	45% Mining Reward 45% Masternode Reward 10% Decentralized Governance Budget
Masternodes Creation	1,000 XMCC
Masternodes Confirmations	15

PROOF OF STAKE

Unlike the PoW consensus algorithm, in which miners validate transactions and create new blocks by performing a certain amount of computational work, a PoS system requires token holders to prove their ownership by showing the number of tokens allocated to the network.

The token holders, called “stakers”, get paid by the transaction fees for validating transactions. Therefore, proof-of-stake creates a clear and unambiguous economic incentive for holders who have chosen to stake their tokens during a specific period. The staking mechanism is definitely one of the smartest ways to earn passive income.

In a competitive market equilibrium, the total volume of transactions fees must be equal to the opportunity cost of all resources used to verify transactions.

Under PoW, the electricity costs, equipment acquisition, and depreciation costs are taken into account by miners to calculate their return on investment. If these costs are not substantial, then it will not be complicated to monopolize the mining network in the long term.

Under PoS, the token acquisition costs, the token circulating supply, and the interest rate are the principle metrics to calculate the potential return on investment. Monoeci is designed to appreciate due to hard-coded supply limitations and the decrease of block rewards over time in order to sustain the valuation of the network.

PoS systems also provide some advantages regarding the electricity consumption and production. Bitcoin and Ethereum burn over \$1 million worth of electricity and hardware costs per day to secure the network.

In our opinion, when the network is well established, there is no need to issue more tokens through PoW to incentivize participants because of the risk of mining centralization. This is even more important when the token price is stabilized.

MASTERNODES

Over time, the cost of running a full node increases as the network gets used more, creating more bandwidth and costing operators more money. Full nodes play a vital role in protecting the integrity and efficiency of the network. As the cost rises, existing operators consolidate their services to be cheaper, or sometimes they exit to start a light node which does not help strengthen the network at all.

Masternodes are an interesting tool for stakeholders (service providers, users, clients and so on) to earn passive income by staking their tokens. Masternodes incentivize operators with 45 percent of the block reward to thank them for operating a server and allocating 1,000 Monoeci (XMCC) to contribute to the safety and efficiency of the network.

Masternodes are not exclusive to proof of stake or proof of work systems. For example, Dash is based exclusively on PoW and PIVX on PoS, both have masternode services.

Masternode Reward Program

To run a masternode, your server has to store 1,000 XMCC (Monoeci) and generate a public/private key pair to be successfully identified and receive rewards from the network. When active, nodes provide services to users on the network. Masternodes are all paid from the same pool of XMCC tokens, approximately 45% of the total block reward generated is dedicated to this function.

The number of masternodes fluctuates during the life cycle of the network, thus, expected rewards will vary according to the number of active masternodes. Daily rewards for running a masternode can be calculated by using the following formula:

$$(n / t) * r * b * a$$

n is the number of masternodes an operator controls

t is the total number of masternodes

r is the current block reward

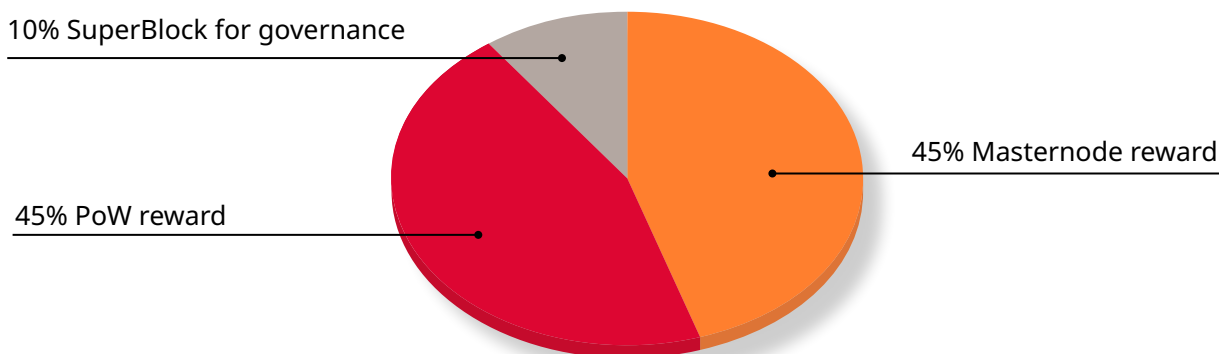
b is the amount of blocks in an average day

a is the average masternode reward

Return on investment for running a masternode can be calculated as follows:

$$((n / t) * r * b * a * 365) / 1000$$

Below is a pie chart for the block reward distribution



Xmcc masternode Statistics

Monoeci's masternode statistics are available on this [website](#). Based on data gathered over the past 24 hours, the stats are the following:

ROI (annual):	61.51% / 593 days
Paid rewards for masternodes	3,470.0000 XMCC
AVG masternode reward frequency	2d 23h 12m 17s
Active masternodes	2,059
Supply	3,127,707 XMCC
Coins locked	2,059,000 XMCC (65.83%)
Required coins for masternode	1,000 XMCC
Masternode worth	\$862.21 / 0.12791 BTC

SuperBlock and Distributed Governance Model

Decentralized Governance By Blockchain (DGBB), referred to simply as the "treasury system", is a means of reaching consensus on the proposed changes to the network and the development of the Monoeci financial ecosystem. Ten percent of the block rewards go to this "treasury", the SuperBlocks, to pay for projects that benefit Monoeci. Treasury funding has been used to hire additional developers and other employees, to fund conference attendance, and to fund integrations with major exchanges and API providers.

Each masternode operator receives one vote. Proposals are eligible for funding according to the following formula: $(YES\ VOTES - NO\ VOTES) > (TOTAL\ NUMBER\ OF\ MASTERNODES * 0.1)$. If there are more proposals that meet this criterion than budget funds for the month, proposals with the highest net votes will be paid. After the sender has sufficient support, the network will automatically pay the necessary funds in the next SuperBlock, which occurs monthly.

Each masternode operator receives a vote. Some get one vote (one masternode), some get 70 votes (one operator, 70 masternodes). Monoeci works well with nodes. Rewards are attributed to the people who do the work, rather than elected or appointed officials. People who greatly help the Monoeci network get greater rewards.

What is expected in the future is a balance of nodes that provides the support basis of the Monoeci network, adding additional nodes when it becomes necessary, and creating a sustainable economy that will pay the expenses of the servers.

PRIVATESEND

PrivateSend is a service of mixing transactions which users have the ability to use to protect their privacy during the process of sending transactions.

The protocol takes different transactions of “similar” sizes to then “mix” them together to build the mixed transaction to hide your public wallet address. More specifically, the transactions are split into denominations (0.1, 1, 10) and handled directly by the masternodes. Masternodes match the denominations to other received transactions broadcasted by users that are using PrivateSend.

The process requires multiple mixing rounds before the process is complete. Masternodes never have direct access to the funds, they only work as a trustless third party, building and broadcasting automatically mixed transactions.

INSTANTSEND

InstantSend was designed to allow instant payments for merchants, one of the most important innovations to develop the use of blockchain technology in everyday life. Currently, merchants that accept Bitcoin wait approximately one hour (six blocks confirmations) to protect against double spending.

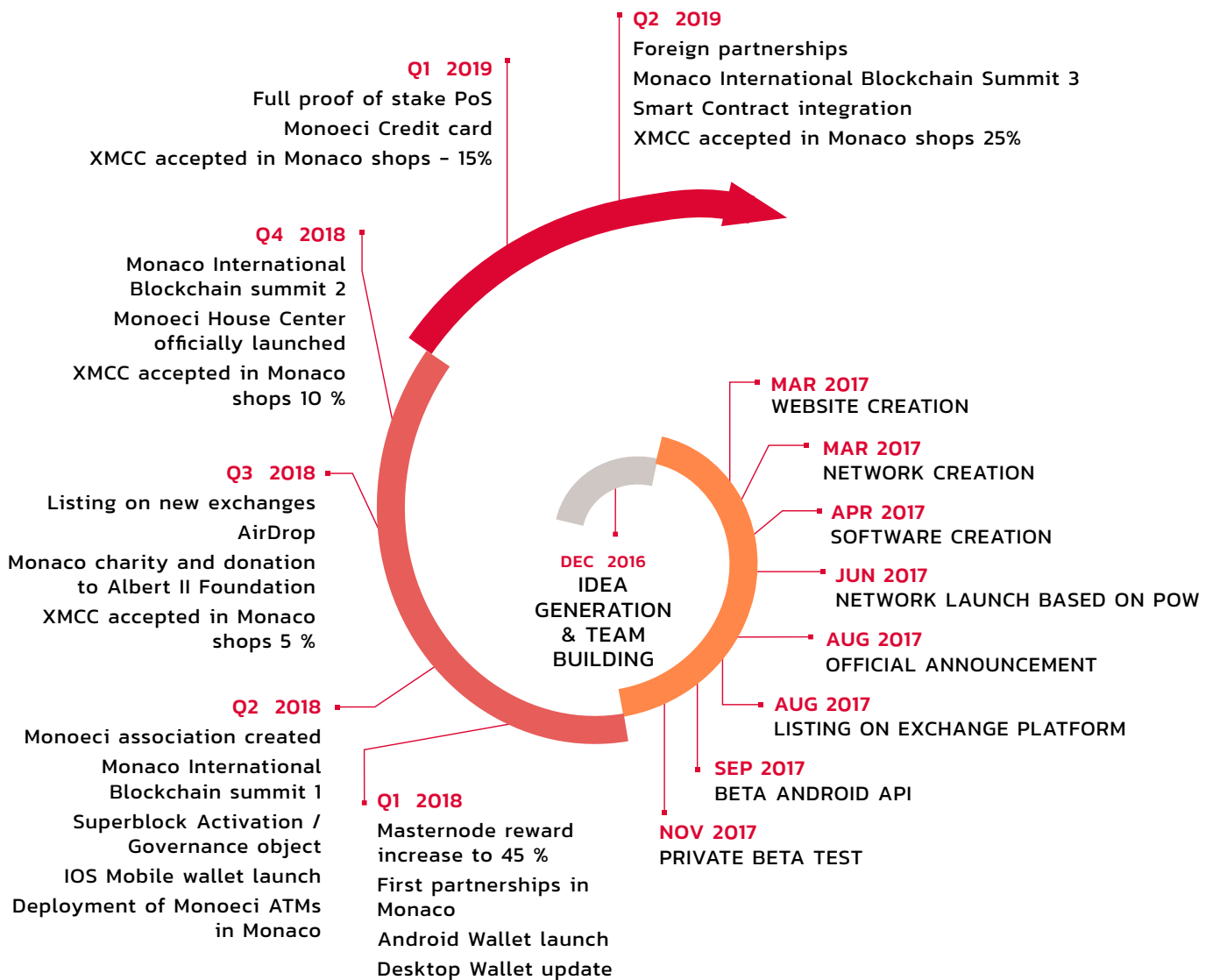
Monoeci will compete with existing centralized payment platforms who offer quick transaction confirmations. Monoeci InstantSend offers this means of quick payment, but in a decentralized and trustless way without any risk of losing user funds.

InstantSend transactions are first locked to prevent double spending attacks on the network. With transaction locking, a client relays an intention to lock funds from a specific input to a specific output to the entire network. This is accomplished by sending a message that consists of the transaction, and the accompanying lock command. Once the locking message has propagated across the network, a set of deterministically selected masternodes will form a consensus to verify the transaction. Once successfully achieved, another message is propagated across the network to unlock the transaction.

Masternodes are used as safeguards to protect the network and also to achieve better performance.

MONOECI'S IDENTITY: ACHIEVEMENTS & ROADMAP

Monoeci's has already come a long way since the project started in September 2016 and significant work has been made since. Monoeci will continue to grow substantially in the future according to the roadmap.



TEAM

Sébastien ICARD

Cofounder & CTO

Sebastien has more than 8 years of experience in software engineering and blockchain technology.

As a technical expert, he worked for a computer and software services company specialized in the Internet of Things. He has also co-founded the Monaco Blockchain Association. He started-up his first business in the home automation sector at the age of 23.

Boris FEDOROFF

International Affairs

President of the Monaco E-sport Association. Online gaming and e-sport specialist. Boris is highly involved in the Monegasque associative environment. He graduated with a degree in International Business from Richmond University and a Marketing degree at London School of Economics and Political Science.

Cédric MAUGARD

Partnerships and Human Relations

With more than five years of headhunting and coaching top IT engineers for innovative companies, Cédric has been developing network and crypto skills since 2014. He created his own private investing club, outperforming the market thanks to his connections with insiders and analytical experts. He is now in charge of team coordination and partnership building.

François GINESTE

Lead Developer

François is a top IT engineer with more than three years of experience specialized in back-end and mobile applications at world renowned companies. He began working with crypto by creating automated trading bots and then continued on to successfully develop monitoring tools, wallets, and the core code for several X11 and Neoscript cryptocurrencies.

Dimitri JEANGERARD

Cofounder, Business Developer & CRM Manager

He obtained a law degree at the University of Toulouse in 2015 and continued in a Business School in the south of France.

Dimitri began by getting involved in several blockchain related projects as both an investor and a translator. Interested by the disruptive potential of cryptocurrency as well as by this young market in full expansion, he chose to quickly make it his sector of business, both as a cofounder of the team Monoeci but also as an investor and trader. He co-founded the Monaco Blockchain Association in cooperation with Sébastien, and is in the process of creating the investment fund Altrium Capital Partners, specializing in cryptocurrencies.

Émile JOSSELIN

Strategy & Communications Consultant

Émile Josselin was a former advisor to French Prime Minister and Deputy Minister for Digital Affairs from 2012 to 2016. He is the Founder and CEO of Enjoy Agency.

He is an expert in digital transformation, communications, public relations, and brand strategy.

Jean-Albert VERGNAUD

Expert, Event and Marketing

Jean-Albert is the cofounder of the Monaco International Clubbing Show. He enters the ninth year with passion and ambition and has also expanded it to the Asian continent in Macau. Coproducer of the NRJ Music Awards for eight years, Jean-Albert is recognized for his expertise and the success of his events. He is now in charge of the Monaco International Blockchain Show.

ADVISORS

Philippe RODRIGUEZ

Business Advisor

Philippe Rodriguez is one of the most renowned cryptocurrency and blockchain specialists in France and Europe. He'll be one of Monoeci's major business advisors.

Philippe launched Bitcoin France and is an advisor to many ICOs all around the world through its firm, Avolta Partners.

Based in Paris, London, Brussels, and Lisbon, Avolta Partners advise high potential companies during all stages of development: from the Series A to the Exit.

Christophe OZCAN

Blockchain Ecosystem Advisor

Christophe is an experienced advisor and entrepreneur within the blockchain ecosystem. He is the CEO and Cofounder of Crypto4All, a blockchain consulting company, and is also an expert member of ISO/TC-307 technical committee dealing with international standardization of blockchain and distributed ledger technologies. Christophe is an active contributor to the European commission Focus Group dedicated to blockchain and DLT.

Christophe is advisor to companies and institutions, helping figure out the technical and strategic challenges of the new crypto economy.

SOURCES AND LINKS

Website	https://monoeci.io
GitHub	https://github.com/monacocoin-net/monacoCoin-Core
Medium	https://medium.com/@monoeci
Telegram	https://t.me/XMCCMonoeci
Twitter	https://twitter.com/monoeci_monaco
Discord	https://discord.gg/Hsdg3BV
Facebook	https://www.facebook.com/monoeci.monaco

Block explorer	http://block.monacocoin.net:8080/ https://insight.monoeci.io/insight/
Masternodes	https://tool.monoeci.io/
Governance	https://governance.monoeci.io/
Paper wallet	https://paper.monoeci.io/
Web wallet	https://wallet.monoeci.io/

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