INSIGHTS

Deconstructing Blockchain: A Wild West Technology With The Ability To Transform Real Estate

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DISRUPTIVE TECHNOLOGY

A technology reminiscent of the early internet day

Blockchain technology. How often has this come up in discussion and you nodded your head as if you understood? After all, you know what Bitcoin is and know that it's part of an array of cryptocurrencies. In our second edition of the Meyers Research Insights, we will breakdown what blockchain technology really is, how it relates to cryptocurrencies, like Bitcoin, and potential ways it could disrupt the homebuilding industry.



ONLINE RECORD BOOK Efficient Tracking Of Transactions

0.68%

0.33%

-0.36%

-0.50%

-64

Blockchain is a decentralized peer-to-peer ledger that records and stores information. It can record anything from logistics of a company to contracts between two parties or the sale of an item. Each transaction is analyzed by a network of computers that can be owned by anyone to verify the information is correct. Once consensus is gained among the verifiers, the transaction is solidified. Transactions collectively make up blocks. Blocks are given unique codes and combined with the blocks before and after, hence the blockchain. Due to the connected nature of the transactions, they are tamper-resistant and secure.





Cryptocurrency is the most widely known use case for blockchain technology. Cryptocurrencies are digital money with no physical form. These online currencies have the same benefits of printed money, but are not regulated by the government. There are roughly 1,600 cryptocurrencies in circulation, with new ones constantly being created. Some of the most popular ones include Bitcoin, Ripple, Ethereum, and Litecoin. Cryptocurrencies remove the need of a middleman in a transaction so thirdparty fees are minimized, and there's instant trust between the buyer and seller because the online ledger confirms the ownership of the digital cash. Transactions are nearly instant, allowing waiting periods for sending money abroad or between accounts to also be reduced.

Bitcoin, in particular, was the first blockchain-backed cryptocurrency. The coin gained notoriety in 2017 when the price jumped from sub-\$1,000 to just under \$20,000 in a 12-month period. Since then, the currency has settled around \$7,700, with a market cap of \$114B. Bitcoin is accepted at some major retailers, like Microsoft and Overstock, and has even been used to purchase homes in the US and abroad.

Sample Of Popular Cryptocurrencies





ethereum





BLOCKCHAIN IN REAL ESTATE

When looking at the real estate sector, there are some practical uses of blockchain technology, including removing investment barriers to entry, allowing for seamless transfers of money, and accuracy and timeliness of reporting.

Quicker Exchange of Capital

\$540,000

Blockchain allows for money to change hands securely and instantly. This is particularly valuable for cross-border transactions, where trust is often scarce, daily limits are low, and the transfer can take days or even weeks to clear. In the housing market, this will benefit markets exposed to international buyers.

Securely Track Critical Documents

Blockchain technology creates a secure way to manage confidential files and information, all while reducing the need for paper-based record keeping. Using the blockchain, it will become easier to verify ownership, transfer the property deed, and ensure the accuracy of all documents.

New Investment Vehicle

The real estate investment trust (REIT) industry has flourished by providing investors with a way to gain exposure to a portfolio of real estate assets. As opposed to buying shares in a REIT, property can also be "tokenized" where ownership interests can be represented by tokens. These tokens can be traded like a stock or can be used to raise capital more efficiently. This allows all types of investors, not just those with deep pockets, to participate in real estate investment. The tokens allow things that are enormously expensive and illiquid to be broken up into tiny pieces and sold on an exchange.

A MORE EFFICIENT HOME SALE CPROP integrates with existing portals

Cryptoproperties LLC (CPROP)* aims to eliminate the largest inefficiencies associated with residential real estate transactions by merging the transparency and trust enabled by blockchain technology with its proprietary plug-and-play workflow management platform. By partnering with existing property portals around the world, CPROP accelerates their speed to market while helping portal partners increase their revenue opportunities and competitive differentiation. For property buyers, CPROP removes anxiety associated with transactions by providing blockchainauthenticated documents, smart contract** escrows, process automation, and options to choose user-rated service providers. CPROP brings blockchain technology into the mainstream of global real estate while enhancing the integrity of the property closing process.

*CPROP is tailoring its transaction management for the needs of each of its property portal partners with an initial product launch (beta version) anticipated prior to the end of 2018.

**Smart contracts can be looked at as an if/then statement in the blockchain landscape. The database is told different rules, terms, and penalties and will only enforce the outcome if the terms are met or violated. For example, you could tell the system not to release funds unless a certain document is signed.



CONSIDERATIONS

Blockchain has immense power to streamline business as we know it, but we'd be remiss to not mention some of the challenges associated with uses of the technology.

- Hackers get smarter by the day. The blockchain itself is nearly impossible to hack and has become the golden standard for those looking for security. The opportunity of cybersecurity threats opens up, however, when users of blockchain for different purposes (like cryptocurrencies) move their components to a secondary website or exchange.
- Regulate what, where, when, and how? There's no clear guidance on how blockchain companies will be regulated going forward. This is seen as an opportunity for some and seen as a risk for others. There's a lot of uncertainty for startups developing their business strategies and companies considering to invest, especially because it's unclear if regulations and fines could be retroactive on things like tokens.
- Energy hogs. The network of computers that are constantly verifying each transaction in the blockchain are consuming a lot of energy. Bitcoin alone accounts for .32% of the world's total energy consumption, equivalent to the amount used by the Czech Republic.

SKIM THE SURFACE

Our white paper aims to simplify the technology, while also just skimming the surface of blockchain's abilities. New companies are constantly being created, offering new uses and solutions to the common challenges in today's marketplace. Furthermore, widespread adoption of blockchain could take a long time (5-10+ years). While mass change is years away, it's important to start thinking about ways this could either disrupt your business or help you gain efficiencies and time savings within your operations today. After all, the internet was new and complicated just 30 years ago and is now the most impactful and prevalent technology of the digital revolution expanding from e-commerce to social media. Pundits believe blockchain has the same transformative ability to change the way we live.







BEGINNING THE JOURNEY

Brace yourself

Blockchain technology is complicated, and you may not understand everything the first time you read it. That's OK. The technology is driven by programmers and computer scientists who use different jargon than the real estate industry. This paper is designed to be a primer on the subject, and we hope for you to leave feeling more aware of the possible changes in our industry.

THE UNIQUE COMPONENTS OF BLOCKCHAIN

Simply put, blockchain is an online ledger-based system that is used to store transaction records. This is similar to what a bank maintains, but there is no central control. Transactions, blocks, and hashes are the basic framework of the technology.

To understand how it works, let's go through the basics.



Records tracked by blockchain capture the entire history of transactions in an upto-date and verified manner, and are unable to be tampered with or changed. When a transaction occurs, the news gets distributed across the internet to the group of miners or verifiers who note the sale. This process allows for a new transaction to be verified by a public network.

PEER-TO-PEER



The sale is recorded once consensus among the group is confirmed. The agreement ensures no one user is cheating the system or acting unfairly because the entire network of computers is watching. Blockchain, therefore, acts as an accurate tracking system.



OTHER KEY POINTS

Different User Permissions

- **1. Public.** As the name suggests, a public blockchain is one that is available to anyone. Meaning, anyone can transact, verify, and monitor. Bitcoin is an example of this.
- 2. **Private.** This type of blockchain is no longer decentralized because the owner can overwrite, edit, or delete as they see fit. The owner also can control who is invited into the network. An example is an internal blockchain for a given company.
- **3. Permission.** A blockchain that can put necessary restrictions on the activity from users. There are more rules than the public blockchain and not everyone can transact. Changing land records is an example of this.

Cryptography: The Math Behind It All

Cryptography is a method of encrypting and decrypting information. In a blockchain, cryptography is used for securing the identity of users and ensuring the data is valid^{*}.

*Cryptography management is important to ensure privacy in transactions. In particular, asymmetric cryptography is gaining popularity. Asymmetric cryptography requires a public key and a private key, rather than just a single key for encryption and decryption. This adds an extra layer of security since a user can release their public key in a transaction without worrying about someone accessing their private key.



A TECHNICAL DIVE



The building blocks of blocks

A transaction, or record, can be viewed as an individual line on a ledger. The transaction can include a variety of items such as data, money, or contracts. Once enough transactions occur, the first block is created, called the genesis block.

The basis of technology

A block contains groups of validated transaction data. Blocks are then encoded and linked to the blocks before and after to form a blockchain. A block is usually 1 MB or less.

Use anatomy to understand

A hash of a block is a unique code, or string of data, that is of fixedlength. The hash is created from an algorithm to make a discrete number to identify a given block in the larger blockchain. Think of it like a finger print, whereby every person (block) is unique.

Traceable steps

Pairs of hashes are combined and run through the hash function algorithm again. This process is repeated until a Root Hash or Merkle Root is created. The chain is important because a small change to the input data would make a drastic change to the hash so the blockchain can detect if data has been changed or manipulated.

Army of independent users

A node is any electronic device that's connected to a blockchain network through the internet. The purpose of a node is to gain consensus (51%+) among the devices to validate the transaction and add a record to the existing blockchain.





Bitcoin is unique compared to the dollar in that there's a fixed amount in circulation. There will only ever be 21 million Bitcoins.



Bitcoin's value is extremely volatile. For example, the value fell 60% from the peak in December 2017 to July 2018. Some of the volatility can be attributed to investors holding the currency for pure speculation versus actually using it to buy goods and services. Another contributing factor is the lack of a central bank or governing body.

WHERE DOES BITCOIN FALL INTO THIS?

The most famous use case

Bitcoin is arguably the most famous use of blockchain technology. Bitcoin is backed by blockchain and has all the components mentioned before (decentralized, online ledger, etc.), but is part of a digital currency family, called cryptocurrency. Other recognizable cryptocurrencies include Ethereum, Ripple, and Litecoin. Using the blockchain technology, all of the transactions are captured on the online ledger, confirming who owns what. There's no physical version of the currency (all of it is online), but there are ATMs across the country where you can purchase it. Bitcoin, like other cryptocurrencies, has the same benefits as cash (anonymous, nontraceable, and instant) without the regulation.

Bitcoin was created in 2008 by Satoshi Nakamoto, an unknown person or group of persons, who wrote about the currency in a <u>white paper</u>. The author described it as "A purely peer-to-peer version of electronic cash [that] would allow online payments to be sent directly from one party to another without going through a financial institution." Coincidentally, 2008 was the same year Lehman crashed highlighting the public desire for a reformed banking system.

BITCOIN PRICES LTM



Jul-17 Aug-17 Sep-17 Oct-17 Nov-17 Dec-17 Jan-18 Feb-18 Mar-18 Apr-18 May-18 Jun-18 Jul-18



SEEING IT IN ACTION

This infographic does a nice job of combining our blockchain basics with showing how an actual cryptocurrency transaction occurs.





COINS VS. TOKENS

The two work in tandem

According to <u>coinmarketcap.com</u>, there are currently 1,615 cryptocurrencies totaling \$270B in market cap. As you can see below, the website breaks out the performance information for both coins and tokens, which are two different things.



TOKEN A token requires another blockchain to exist and operate.

Top 100 Tokens By Market Capitalization

Cr	yptocurrencies 👻	Watchlist			USD -				Next 100 \rightarrow View All
^ #	Name		Platform	Market Cap	Price	Volume (24h)	Circulating Supply	Change (24h)	Price Graph (7d)
1	EOS		Ethereum	\$7,941,560,300	\$8.86	\$1,038,580,000	896,149,492	-2.05%	
2	Tether		Omni	\$2,721,975,475	\$1.01	\$3,599,390,000	2,707,140,346	0.50%	myn
3	🕅 TRON		Ethereum	\$2,504,490,218	\$0.038092	\$111,982,000	65,748,111,645	-3.76%	mmm
4	💠 Binance Coin		Ethereum	\$1,567,691,403	\$13.75	\$40,752,700	114,041,290	-2.41%	mm
5	V VeChain		Ethereum	\$1,442,990,845	\$2.61	\$50,251,400	552,167,681	-4.61%	mmm

Think of tokens as a casino chip, whereby it has the following characteristics:

- You can convert cash to tokens and tokens to cash
- Tokens make transactions less expensive because they remove fees
- Tokens make transactions quicker because you don't need to settle between each sale





POTENTIAL IMPACT

When looking at the real estate sector, there are some practical uses of blockchain technology, including removing investment barriers to entry, allowing for seamless transfers of money, and accuracy and timeliness of reporting.

Quicker Exchange of Capital

Blockchain allows for money to change hands securely and instantly. This is particularly valuable for cross-border transactions, where trust is often scarce, daily limits are low, and the transfer can take days or even weeks to clear. Through the blockchain, there's verification that the money being transferred is real. Furthermore, the digital cash is liquid.

Securely Track Critical Documents

Blockchain technology creates a secure way to manage confidential files and information, all while reducing the need for paper-based record keeping. Using the blockchain, it will become easier to verify ownership, transfer the property deed, and ensure the accuracy of all documents. It also makes it extremely difficult to counterfeit property records or fake ownership.

New Investment Vehicle

Tokens are a new investment vehicle brought about by blockchain that will create a secondary market in real estate. These tokens can be traded like a stock or can be used to raise capital more efficiently. This allows all types of investors, not just those with deep pockets, to participate in real estate investment. The tokens allow things that are enormously expensive and illiquid to be broken up into tiny pieces and sold on an exchange.



CRYPTOCURRENCY TO BUY HOMES? Not as risky as it initially sounds

Large retailers like Expedia, Microsoft, and Overstock accept Bitcoin as a means for payment, as are some homeowners. Starting last year, stories of homes selling with Bitcoin started popping up in the US and abroad.

Mevers

- **Bitcoin to cash conversation.** Bitcoin has an exchange rate, just as other currencies do, so there's an easy way to understand the value in dollars. Some sellers are reluctant to take the coins as payment. If the buyer wants to use Bitcoins, a third party like <u>Bitpay</u> can step in and convert the coins to dollars. In the eyes of the title and escrow companies, this will operate just like a regular cash deal.
- **Bitcoin and hold transaction.** For sellers interested in the cryptocurrency, they can agree to sell the home and receive Bitcoin in return. In this case, there's heightened risk for the buyer because the home price is fixed, but the value of the currency can fluctuate considerably. This type of sale could see quicker transaction times.
- **The edge.** In a competitive marketplace, developers or sellers willing to accept cryptocurrencies could have a leg up.





UBITQUITY

BLOCKCHAIN RECORD KEEPING

Digital File Cabinet

<u>Ubitquity</u> is a company that created a fully-functioning platform for uploading and recording real estate documents to the blockchain, namely land titles. They are not looking to replace the existing process, rather add a parallel record that is published online instantly. They want to provide a clean record of ownership through a chain of titles that can't be tampered with.

Ubitquity is one of many companies trying to revolutionize title recording. <u>Velox.re</u>, another blockchain startup, partnered with Cook County in Chicago for a pilot program designed to transfer and track property titles and other public records.







NOT YET

The company is currently working through the testing phase and legal structure, but they offer a sneak peek at the technology on their website using mock tokens.

TOKENIZED REAL ESTATE

<u>Atlant</u> is a blockchain startup looking to challenge the way real estate transactions occur. They are coming at this from two different angles. One, they are testing a platform to trade residential and commercial properties. Two, they want to put companies like Airbnb and Booking.com out of business by removing the middleman (we'll only cover the former in this white paper).

TRADE REAL ESTATE LIKE STOCKS

Company founded by experienced Wall Street bankers in 2017

Atlant think there's a missed opportunity by not letting everyone invest in real estate the way individuals can with stocks. After all, real estate is one of the largest asset classes in the world. Powered by the Ethereum blockchain, Atlant is looking to bring liquid trading of real estate mainstream. Their trading platform would remove barriers to entry, bypass regulation, increase liquidity of assets, and improve transparency of transactions.

Atlant's platform would allow anyone to buy and sell real estate with a click of a button. They do this by taking a hard asset and putting it in a special purpose vehicle to be sold to many people through tokens, who then become partial owners. You could buy one meter or 100 meters of the property. The network of Atlant token owners would help identify property owners or developers willing to sell their asset or part of the development to raise funds for construction^{*}.

*See the technical notes and acknowledgements section at the end for methodology from Atlant's white paper



What property portals have done to improve the efficiency of the property search process, CPROP will do for the transaction process.



CRYPTOPROPERTIES LLC (CPROP)

We interviewed <u>CPROP</u>'s co-founder, Adam Koehler, to hear firsthand from a company that is championing a more efficient way to buy homes.

Mevers

CPROP's core product is a blockchain-powered real estate management system that can be integrated into existing property portals to connect all parties of a home sale. The cloud-based platform will allow the entire transaction process to be displayed for each of the involved parties, providing clarity as to what documents and tasks must be completed to close the transaction. The target market is property buyers and sellers, and their respective service providers (e.g., agents and brokerages, notaries and lawyers, inspectors, contractors, etc.)

WHAT PROBLEMS ARE BEING SOLVED?

Trust	Reputation		
Blockchain addresses trust gaps	Reputation-based service provider directory		
Trust is a challenge in cross- border and other long- distance transactions as well as deals taking place in countries with low <u>Global</u> <u>Real Estate Transparency</u> <u>Index</u> scores. CPROP's blockchain implementations include smart contract escrows and blockchain- authenticated closing documentation, including property deeds. These applications can ease the minds of buyers who are mistrustful of legal systems	Everyone needs real estate professionals to help them close their transaction, whether it be lawyers, agents, etc. How do we find those service providers when the property is located far away? Word of mouth? Referrals? Any way you cut it, it's inefficient. What if we could choose providers based on reputation, like we review hotels with TripAdvisor® before booking? That's CPROP.		
	Trust Blockchain addresses trust gaps Trust is a challenge in cross- border and other long- distance transactions as well as deals taking place in countries with low <u>Global</u> <u>Real Estate Transparency</u> <u>Index</u> scores. CPROP's blockchain implementations include smart contract escrows and blockchain- authenticated closing documentation, including property deeds. These applications can ease the minds of buyers who are mistrustful of legal systems where they are buying their		

CPROP'S TECHNOLOGY TOUCHES THREE POINTS





OTHER COMPANIES TO WATCH



Forecasting Tool

Augur is a blockchain-based prediction market that encourages users around the world to vote on things that will happen in the future. People have an incentive to vote correctly (versus what someone wants to hear) because they will get rewarded if their outcome holds true. In theory, this will provide better forecasting about topics ranging from currency values to alien attacks and predicting the next economic recession.

Implementing Smart Contracts

Smart Realty is using smart contracts to help alleviate some of the headaches of buying a home. Their platform would help execute, record, and enforce real estate transactions (for-sale and for-rent).

New Investment Opportunities

<u>Harbor</u> is similar to Atlant in that they are trying to make illiquid assets, like real estate and private investment funds, liquid through a token economy. Harbor is creating a system that automatically performs SEC compliance checks before allowing the trade to occur, including making sure the partners are accredited investors.



THE LIST KEEPS GROWING

A new crop of companies focused on real estate are emerging every day that touch different avenues of the industry. The companies we've highlighted showcase an array of applications. The growing interest from tech firms have the potential to transform the buying, selling, trading, and documenting of real estate assets.







FRICTIONLESS EXPERIENCE

From Amazon and Zappos to Costco, the shift towards better customer experiences is popping up in every industry. In the last five years, <u>Opendoor</u>, <u>Offerpad</u>, and <u>Knock</u> are just a few companies that have created platforms in the real estate industry that remove inefficiencies, uncertainty, and waiting out of the traditional homebuying experience by eliminating unnecessary steps. Other companies like <u>Purplebricks</u> challenge the traditional fee structure for brokers to help save the consumer money.

The solutions of the aforementioned companies are also attributes of blockchain technology. For buyers and builders, there's an array of middleman that add to the complexity of purchasing a home. Imagine how a shared ledger could streamline the experience by bringing all parties to a central location that removes any confusion on steps and timelines.



WHAT CAN BUILDERS EXPECT?

Improving pain points

Enhance The Experience

Many of the innovations are coming for the resale market, which will put pressure on homebuilders and related trades to enhance the buying experience.

The segments of the industry that stand to be the most disrupted from blockchain include:

- The mortgage process
- Escrow documentation and tracking payments
- Title verifying and recording
- Foreign buyer transfer of money
- Raising capital for real estate development





WILD WEST

As blockchain becomes mainstream, there are three considerations we think are important to understand:

- 1. Security related to intermediary companies that try to make a more user-friendly platform
- 2. Regulation, or the lack thereof
- 3. The potential impact on the environment

Let's explore.



RECENTRALIZED

The decentralized ledger itself is nearly impossible to hack, but it is when the users move back to a centralized platform, the exchanges, that their information becomes vulnerable. The stability of exchanges is a big concern for cryptocurrencies because the platforms include all the information the sophisticated hackers want. A workaround is to keep your information on a thumb drive with a private key that is impenetrable^{*}. Exchanges are not just exclusive to cryptocurrencies, the tokenized economy mentioned earlier could also be susceptible to hacks.

\$750M stolen in six months

People that put their cryptocurrency on an exchange faced a substantial increase in hacks from just the first six months of 2018 (\$750M) compared to the full-year of 2017 (under \$300M).

South Korean hack

Coinrail, a third-party exchange in South Korea, was targeted by hackers that lost ~\$40M. This caused the value of Bitcoin to slump 10% over a weekend as security concerns were heightened.

Dollar Value of Cryptocurrency Stolen from Exchanges (Millions)



*There are countless examples of owners losing their hardware, ergo their entire cryptocurrency portfolio. Once the key is gone, or a password is forgotten, the owner cannot recover the information. Walletrecoveryservices.com is a crypto expert that will try to hack your password if you have a vague idea of the digits from your private key.





REGULATION

The Internal Revenue Service (taxing), the Securities and Exchange Commission (initial coin offerings and securitization), and Financial Crimes Enforcement Network (hacking) are all laying the groundwork for different regulation on uses of a blockchain network.

Mevers

The U.S. Securities And Exchange Commission (SEC) plays a big role for companies creating businesses around blockchain technology. The regulation from the SEC on the definition of securities makes it difficult for startups to both raise money and slows the timeframe for companies get to market. In other counties though, most notably Malta, Singapore, and Switzerland, regulation is moving quicker and, in some cases, is favorable for blockchain companies.

GLOBAL RELUCTANCE

Big Claim

The Bank of International Settlements, the central bank to central banks, said earlier this year that they do not believe or support global financial institutions adopting cryptocurrencies at large. They cited stability and vulnerability concerns:

- The currencies could lose their value overnight
- Money only works if there's trust in the stability of the value
- Networks could get congested with too many users, causing a potential crash

Lose Control of Wider Economy

Decentralized money makes it impossible for governments to control their economies by managing fluctuations in currency or getting a grasp on inflation.

We Need to Work Together

As regulators work through the best way to govern uses of the technology, the global connectivity (versus just country by country) would need to be considered since transactions can occur internationally.

" [Bitcoin] is a combination of a bubble, a Ponzi scheme, and an environmental disaster "

Agustin Carstens

General Manager of the Bank of International Settlements



SORRY, ENVIRONMENT

Verifying transactions consumes a lot of energy

Without being too technical, we want to use Bitcoin as a way to exemplify the mass energy use of blockchain technology. Remember, Bitcoin is only one of over 1,600 cryptocurrencies in use, and there are new startups every day using the technology.

Bitcoin pays miners to help validate the transactions. These miners are computers or processing devices that are connected to the network. As the demand for Bitcoin goes up, so does the demand for miners. For each transaction, they must compute complex math problems to verify the sale. The intensive computing process can take roughly 10 minutes per each transaction. Some people have one-off processors, but generally it's more profitable at scale (think a whole warehouse of processors that are constantly running and need air conditioning and other power). Miners are incentivized by getting a reward once each transaction is successfully processed.

It's fairly difficult to accurately model the energy consumption of these miners, but <u>Digiconomist</u> is the leading source. Their model shows that Bitcoin accounts for .32% of the world's total energy consumption, and most of it is using coal-powered

plants. The company puts Bitcoin's energy usage at 71 terawatt hours per year. Morgan Stanley believes if the production continues at this rate throughout the year, it could increase to 120 to 140 terawatt hours per vear. With these challenges, there are more energyefficient protocals being developed that may help soften the energy use.





Digiconist believes that the energy consumption from just one bitcoin transaction could power 34 US households for a day.



NEW AND COMPLICATED TECHNOLOGY

Is it all just a hype?

We hope you are left with a better understanding of the technology and potential ways it can be implemented across the industry. However, we are still in the very early stages of understanding all the capabilities of blockchain and no one knows how it will develop. It's still unclear if blockchain truly is a once-in-a-lifetime technology like the internet that will transform the way we live and work, and only time will tell.

ELECTRONIC MONEY MINING CONTROL SERVICES ETHEREUM TRANSACTION DIGITAL BIT DIGITAL **ASSETS** COIN TRADING **PEER-TO-PEER**



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ABOUT MEYERS RESEARCH

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TECHNICAL NOTES FROM ATLANT'S WHITE PAPER

ATLANT platform seeks to help subdivide individual parcels of real estate into tokens, and subsequently PTO (Property Token Offering) and list them on exchanges, starting with the decentralized ADEX exchange based on Ethereum smart contracts. Such endeavor would ease transfer of ownership, simplify fractional holding without minimal constraints, alleviate tax inefficiencies, make cross-border transactions simple, and eliminate substantial overhead faced in certain jurisdictions due to unnecessary middlemen. Tokenizing property will allow real estate assets to be uniquely identified via a digital record that contains information regarding occupancy, physical characteristics, legal status, historical performance, and financial position.

Once a property has been identified and verified by local authorities, and its details published on the platform, a date will be set for the properties' Property Token Offering ("PTO"). Price for the listing offer will be taken from the developer or selling party. Lawyers/trust companies who digitally signed all certificates and will be handling transfer of ownership are involved off the chain with ATLANT supervising the process. All requisite documentation and offering documents will be published on ATLANT for prospective PTO holders to assess the property for potential purchase. Subscription will be handled via smart contracts and aggregated into a fund which will be collected via ATLANT escrow from the start of the PTO until expiry date set at the start of the process. If during this time period the fund has not reached capacity, ATLANT escrow will release tokens back to the addresses of the token holders. Should the fund reach capacity set forth by the seller, funds will be sent to the seller and PTO tokens will be distributed to the token holders of the property. Subsequently PTO tokens will be listed for trading on exchanges, starting from the decentralized ADEX exchange to increase liquidity and price discovery of the tokenized real estate asset.

www.atlant.io



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08 GLOSSARY AND SOURCES



GLOSSARY

Transaction: A record that can be viewed as an individual line on a ledger. Transactions can include a variety of items such as data, money, or contracts. Once enough transactions occur, a block is created.

Block: The basis of the technology. Blocks contain batches of validated transaction data, they are then encoded and linked to other blocks (the ones before and after) in the blockchain. A block is usually 1 megabyte or less.

Genesis Block: The first block created in a blockchain.

Hash: A unique string of data that is of fixed length. A hash is created by running the data from a given block through an algorithm. This unique code is like a fingerprint of a block, whereby every hash is unique.

Hash of Previous Blocks: Pairs of individual hashes are combined again and run back through the algorithm. This process is repeated until a Root Hash or Merkle Root is created. This chain is important because a small change to the input data would lead to a drastic change of the output hash. This allows the blockchain to detect if data has been changed or manipulated.

Merkle Root/Root Hash: A hash of all hashes in a blockchain.

Miner: A powerful computer that verifies data by solving complicated mathematical equations. This process is used to add new blocks to a blockchain.

Node: Any electronic device that is connected a blockchain network. Nodes validate transaction data and add blocks to the existing blockchain.

Coin: An independent blockchain that operates independently of any other platform. Bitcoin is an example.

Token: A representation of any asset, liquid or illiquid, that requires another blockchain to exist and operate.

Smart Contract: A smart contract can be viewed as a computer program that verifies if/then statements which validate the performance of a contract within a blockchain. The smart contract will only enforce the outcome if the terms are met. For example, you could tell the system not to release funds unless a certain document is signed.

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