CMS WiRE

Will Smart Contracts Transform the Economy?

By Scott Clark
April 27, 2022

Whether we're talking about Web3, blockchain technology, non-fungible tokens (NFTs) or cryptocurrency, the topic of smart contracts comes up again and again.

Smart contracts are said to be self-executing, less expensive, reliable, transparent, secure and borderless, and rely less on lawyers and legal teams than traditional contracts do.

This article will discuss what a smart contract is and what brands need to know about them.

Smart Contracts for CTOs, CMOs and Other Leaders

Understanding Web3 — and with it, smart contracts — means being knowledgeable about:

- Blockchain technology
- Cryptocurrency
- Crypto wallets
- Decentralized apps (dApps)
- The metaverse
- Virtual reality (VR)
- Augmented reality (AR)

No one expects CTOs, CMOs and other leaders to be programmers, web developers, network engineers, software developers or crypto experts — but

they should understand these technologies and how people use them, as smart contracts can impact customers, employees and supply chain vendors.

Many might question how brands can use smart contracts other than as part of Web3 endeavors. Forward-thinking leaders envision brands using smart contracts as part of loyalty rewards programs, for selling NFTs (like Taco Bell, Louis Vuitton, Nike and Tony Hawk, to name a few) and to simplify contacts between content creators, products and consumers.

"Marketers can absolutely use smart contracts to maximize brand exposure, and the possibilities are fascinating," said attorney Tal Lifshitz, a partner and co-chair of the cryptocurrency, digital asset and blockchain group at Miami-based Kozyak Tropin & Throckmorton.

"As just one example, imagine a smart contract that could trigger an ad to start playing, but only if certain conditions were met, such as a number of viewers on a stream, or number of hits on a website, thereby maximizing views. I think all marketers are keenly interested in that."

Related Article: Is Web3 a Buzzword? Or the Real Deal?

What Is a Smart Contract?

We know that a smartphone is a mobile phone with additional functionality, such as gaming apps, GPS, web browsing, chat functions and more. But given that a contract is simply words, either digital or on paper, what is a "smart contract?"

Smart contracts, similar to traditional contracts, feature the terms of an agreement. However, the former's terms are established and executed as code running on a blockchain. Smart contacts are also sent and received without the need for a "trusted intermediary," such as a bank, government entity, corporation or individual, making it possible to securely automate and decentralize almost any kind of agreement. A blockchain provides smart contracts with reliability, security and borderless accessibility.

Ryan Boder, CMO and core contributor at API3, a first-party oracle solutions provider that enables Web3 applications to call any web API directly from a smart contract, is in a unique position to speak about smart contracts.

Boder told CMSWire that a smart contract is essentially "an agreement between multiple parties that is automatically and reliably executed so that the parties don't have to trust each other or any third-party intermediary. It results in the exchange of value — and that could be anything from the transaction of digital tokens, automation of workflow or a unique user experience. Smart contracts are the foundation of anything else that's possible within the world of Web3."

Real-World and Digital Applications

The reason smart contracts are called "smart" is because they define the terms of a transaction or agreement. When those terms are met (i.e., the receipt of a trigger or event), they execute and perform their assigned tasks automatically.

A real-world example would be that of a buy-here-pay-here car lot. When the car lot enters into an agreement with a buyer, they agree that when the car is paid for in full, the buyer will receive the vehicle's title. With a smart contract, when the final payment is collected, the title automatically gets sent to the buyer without the need for any human intervention.

Smart contracts bring about new opportunities for people to borrow, buy, sell and trade. Unlike traditional financial applications, decentralized finance (DeFi) dApps are not limited to certain hours, as "market hours" are 24/7. Additionally, dApp users can participate without the requirement of centralized custody or fees from intermediaries.

Gaming is another area where brands use smart contracts. NFTs are unique digital assets used to represent in-game content. Unlike traditional game apps where players spend money to unlock access to in-game assets or gameplay configurations, NFTs are owned outright and facilitate the ability to save in-game purchases, sell them to other game players or transfer them to other supported games.

As far as traditional contracts go, smart contracts can perform the same functionality, albeit at a much lower cost in most cases. Smart contracts can function as legally binding contracts, just as digital and paper contracts do today. Some states, such as Arizona and California, already allow the use of smart contracts as enforceable legal agreements, including marriage licenses.

Mitchell Amador, CEO and founder of Immunefi, a bug bounty and security services platform, spoke with CMSWire about smart contracts and how he envisions them making a big impact on the economy.

"Smart contracts are a huge step forward for business process and automation," said Amador. "We fully expect them to transform the economy by making it easier for businesses to link their core processes together in a peer-to-peer way. Smart contracts can be used for trading, investing and borrowing, but they can also be used in other areas, such as voting, health care and real estate."

Related Article: A Guide to NFTs: What Brands Need to Know

What Do All Smart Contracts Have in Common?

Smart contracts essentially consist of three components.

- **The first:** The signatories, the parties involved in the smart contract. Smart contracts use digital signatures to approve or disapprove the contractual terms. A person's crypto wallet is used to "sign" the agreement.
- **The second:** The subject of agreement or contract. For example, a person may agree to purchase a specific amount of Bitcoin.
- **The third:** The specific terms involved, i.e., the current Bitcoin price is $40,617 per BTC, and a person has agreed to purchase $500 worth of Bitcoin, so they will receive 0.01183281 BTC in exchange.

Additionally, all smart contracts have some properties in common. They are part of a blockchain, so they have a state that exists across the entire network. Each node running the blockchain has a copy of the state of the smart contract, and when a transaction occurs concerning it, its state changes and is updated on each node.

Once part of the blockchain, the smart contract's terms cannot be changed, as there is no way to manipulate them without alerting the network. Once again, the only thing that changes is its state.

"Smart contracts are designed to faithfully do exactly what they were programmed to do — no matter what. Once they are started, no one can change them. The blockchain makes sure of it," said Boder.

Plus, much like a contract from a lawyer, the logic of a smart contract cannot be distorted, as it is a binding agreement between two parties, one that is self-verifying and self-enforcing.

"Smart contracts that can be used without the users having to trust anyone, such as the developer or company who made them, are especially useful for applications or deals that involve a transfer of value such as exchanging money, finance, banking, legal contracts, escrow, deeds/property rights and insurance," Boder explained.

"The beauty of smart contracts is that they're self-executing, and don't require trust that your counterpart will satisfy their obligations," added Lifshitz. "Once the specific conditions that have been coded into the smart contract are satisfied, the contract will execute automatically. That means, whatever your business, smart contracts can increase efficiency exponentially."

What Does Smart Contract Code Actually Look Like?

Smart contracts use code that is similar to other programming languages. They essentially say, "if this happens, do this, else, do nothing." Smart contracts can work in conjunction with other smart contracts, creating more sophisticated functionality.

Here is an example of the code used to create a smart contract. It was written using Solidity, an object-oriented, high-level programming language specific to smart contracts.

Once this code is written, it is compiled by the Solidity compiler and can be tested using the Ethereum Remix IDE, an open-source browser-based IDE for Ethereum smart contracts. Once the smart contract is ready, you can deploy it on the Ethereum network, which costs approximately $400 to $2,000. Other blockchain networks may charge less, and some, such as Infura, allow the deployment of three smart contracts for free.

Smart Contracts Do Have Limitations

Businesses can use smart contracts in many applications, but as with any technology, they have limitations to consider first.

Smart contract transactions may not be completed as quickly as one might imagine. Congestion on a blockchain network, the time of day and internet latency can cause delayed transactions. As with stock market transactions, the cost this incurs varies. Cryptocurrency prices rise and fall in milliseconds, as do blockchain gas prices (the fee charged by blockchain networks to put a transaction through), and this can affect the overall cost of a transaction.

Flexibility in a smart contract can be an issue, too. Logic-based terms are often challenging for legal experts to apply to certain contracts. Traditional contracts have a subjective element that uses intentional usage of terms such as "good faith" or "reasonable," which provide flexibility. These relational contracts are different than transactional contracts, and it may be challenging to create smart contracts that can programmatically offer such flexibility.

Brands must also consider the legal ramifications of a contract. While smart contracts don't require lawyers, that doesn't mean you can ignore the legal complexities of contract creation. It still makes sense to have a lawyer or legal team look over the contractual terms of any agreement.

"Smart contracts are immutable," said Lifshitz. "That means once a contract executes, there are no take-backs. There is no avenue for recourse through external mechanisms, like courts. Smart contracts are coded by humans, and a smart contract is only as good as its code.

He added, "Poorly written code behind a smart contract can leave it open to be exploited from the outside. Smart contracts hacks have recently resulted in thefts of significant digital currency, for example."

Related Article: Understanding Web3's Supporting Blockchain Technology

Final Thoughts

Smart contracts can be used for a myriad of transactions and provide reliability, security and borderless accessibility. Understanding how smart contracts work, how they are created and what they have in common with traditional contracts can enable brands to use them effectively — without running into their limitations.