

# Blockchain and smart contracts: Key fundamentals to remember

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*Smart contracts introduce a completely secure algorithm for conducting business relations by using some prominent features of blockchain technology.*

MADRID, SPAIN, February 3, 2021 /EINPresswire.com/ -- The Definition

[Smart contracts](#) are immutable pieces of code that run on the digital cryptographical ledger to perform a certain transaction or task. When these contracts are performing in this highly encrypted network, they act like self-operating computer programs that automatically execute once specific conditions are met.

## Why Are They Good?

To illustrate what smart contracts really are, their creators often refer to an example of the principle of a vending machine. So you want a chocolate bar. You insert money into a vending machine, then you need to choose a 'condition'. That would be, for instance, a Snickers bar. You hit a button, the machine confirms that you've put the money and if yes - gives you the treat. If you hit the button without inserting the money prior to this action - you won't get chocolate. That's a simple if-then statement by which smart contracts essentially work. The only difference is that you don't need any third-party contractors to hold your money before the requirement is met. In fact, the third-party could be the blockchain, but it's not a legal entity that stands between you and the other party of the agreement. It's just a technological solution behind these automated peer-to-peer contracts.

Smart contracts are good because:

No middlemen involved between the negotiators

Execution time - up to minutes

Remittance is automatic

Full transparency

Easy archiving

Cryptographically secure

Cost of transactions is low

Signatures are digital

Identities of the participants are anonymous

Let's imagine you've raised some money on [crypto staking](#). So you're considering implementing

smart contracts for your business or personal usage. Or you want to suggest them to your friends and colleagues. Here are the top 7 evidence pieces that you want to say in favor of this technology:

**Independence** – You won't have to go to a notary, broker, lawyer, or another third-party person to make sure that your contracts will execute right. This also eliminates the probability of any unfair manipulation by the intermediary.

**Public log** – Similarly to crypto coin transactions, all the smart contracts are available through the shared bitcoin ledger. So there's virtually no chance of signing a contract and then worrying about losing them or someone stealing them.

**Backup** – Since the contracts are copied across the whole network, you can trust the network in terms of keeping the information for whatever reason you might need it in the future.

**Security** – The cryptographical algorithms designed for the blockchains are impossible to hack even with the most advanced technology and computational power. Even if a quantum computer would try to infiltrate, it would fall behind the network. For example, in [Ethereum](#), new blocks are generated every 12-15 seconds. So, since it's the chain, in which each block contains the hash of the previous one, and in turn, numerous untraced computers write this data in their own storage, it's physically impossible to inject any kind of code or break the chain.

**Fast performance** – Smart contracts execute automatically once the preset condition is met which saves a lot of time that you would otherwise spend on negotiating the delivery with all the parties involved in the contract, waiting for the bank transfers, etc.

**Cost-efficiency** – Transactions are approved without the middlemen so it saves you money on paying intermediaries.

**Correctness** – The chance for human error is minimal since an exhaustive phase of compiling, signing, and approving tons of paperwork is excluded from this process.

### The Future For This Technology

When you think of all the possibilities of smart contracts in today's global economy, they seem to be limitless. Essentially, they are the best solution for any business that requires some sort of secure, fast, trusted, and accurate approval on the if-then premise. So, any kind of supply chain, regulation compliance, quality supervision, documentation and money flow, personal data storage will win if using smart contracts. Basically, any agreement between people that requires conducting some rules and maintaining commitments could be best executed by eliminating the human factor between them and automating those agreements by means of smart contracts involvement.

By the way, some large organizations are already using smart contracts quite successfully. For

example, one of the global security trusts used blockchain to process almost 400 million transactions on securities that were worth a whopping \$1.5 quadrillion. Some investment banks in the USA also take advantage of this technology for the automatic approval of payment transfers.

#### Which Blockchains Offer Smart Contracts?

Ethereum is the most popular blockchain technology for executing smart contracts. In its essence, it's the next-generation blockchain after bitcoin which was designed to be something more than just a digital P2P currency. It is different from Bitcoin because its concept expands far beyond the concept of decentralized digital money. This solution was created to distribute assets in the event of the "proof of stake" thus enabling to encode the provisions of the organizations or simply the agreements between two or more parties. Since they are executed automatically in a blockchain, there is no chance of tampering with the contract and deceiving the other party. If the predetermined condition is failed, the locked assets distribute back to the owners.

Another good thing is that you can execute contracts on the aforementioned network using another crypto, like bitcoin, as a payment. Yet, there's a catch here. All the inexhaustible computing power coming with the Ether blockchain is not for free. In order to benefit from it, you'll have to pay a certain amount in ETH tokens.

The good old bitcoin can also be used for creating smart contracts, yet it has limited power to process documents. NXT is another public blockchain that allows for making smart contracts. One downside to it is that it has a limited number of templates and even the most tech-savvy developer won't be able to code their own ones on its basis.

Mary  
Freelancer  
[email us here](#)

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