

How to Automate Business Transactions with Smart Contracts

Smart Contracts as an emerging Fintech technology can be a key player in automating businesses

At the 2015 London FinTech Week Hackathon, one of the teams demonstrated how insurance settlement can be automated using smart contracts. They built a smart contract application, where policy conditions were held in the Blockchain. And by connecting the Blockchain to UK Civil Aviation Authority data over the Internet, this smart contract app automatically triggered insurance claims for 558,000 airline passengers (who otherwise didn't file claims for flight delays/cancellations over a 12 months period) and got their claims settled.

This principle can be applied to other insurance use cases, such as an auto accident. A claim can be automatically triggered from the policyholder's smartphone or connected car, processed using a smart contract, settled based on conditions coded in the contract and pay-outs can be routed directly to appropriate auto-repair providers.

This model reduces both processing and settlement cost for Insurers, has the potential to eliminate fraud while boosting customer satisfaction.

Investors realize the potential of this Fintech disruption as,

- Smart contract VC-related deals totaled 116 million US Dollars in Q1 of 2016, more than twice as much as the prior three quarters combined and accounting for 86 percent of total Blockchain venture funding.
- An Ethereum-based organization has raised over 150 million US Dollars to experiment with and develop smart contract-driven applicationsⁱ

Understanding smart contracts

Nick Szabo, a computer scientist, legal scholar, and cryptographer, coined the term *smart contract* in 1993 in context of digital currency and computable contract language. In today's Blockchain era, smart contract is

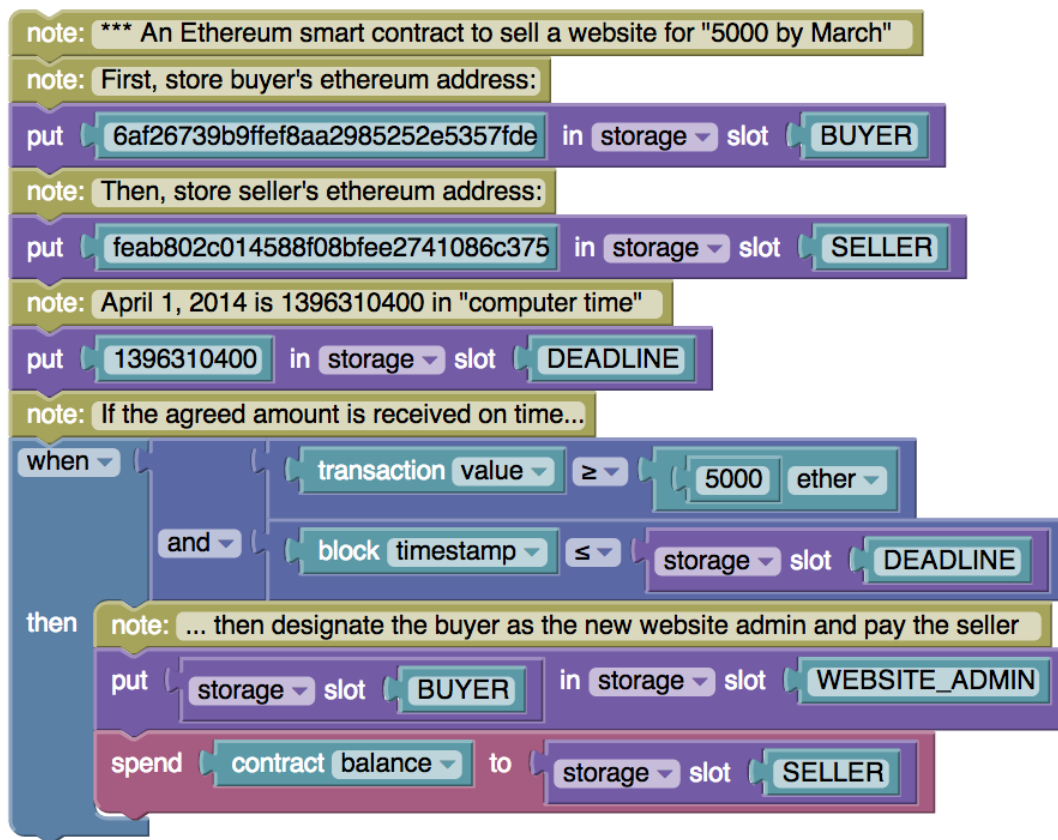
often hyped as the central component of Blockchain platform (such as Ethereum).

To evaluate the capabilities of smart contracts, let us consider three main ways the term is understood and interpreted.

Smart contract as software agent

From a software standpoint, smart contract is essentially a piece of code that executes on a Blockchain and adds intelligence to the transactions. As such this code is far from what we ordinarily understand as “contracts”, though this program can specify a financial transaction (“If Alice account adds up to 100 BTC, transfer 50 BTC to Bob). It can also be an application to implement certain governance rules (If Alice account type matches X authorize her with voting rights etc.)

The Ethereum platform is designed to develop such “smart contract” applications which can be used in industry or enterprise specific Blockchain. The language EtherScript used is made human readable and intuitive with color coding and modular flow, as in the following sales contract:



Source: "What is Ethereum?" EtherScripter, 2016, http://etherscripter.com/what_is_ethereum.html

Smart Legal contract

In the B2B world, smart contracts automate processes and execute pre-agreed conditions when those are met. This is a specific use case of smart contract code used in Blockchain to articulate, verify and enforce commercial agreements. Financial and insurance sectors can leverage this to automate and streamline their systems.

As Josh Stark from Coindesk notes, "Commercial agreements are full of boilerplate clauses that protect parties from various edge-case liabilities, and these are not always suitable for representation and execution through code, meaning that smart legal contracts will require (at least for the foreseeable future) a blend between code and natural language."

Smart legal contracts are increasingly being used as smart *financial instruments* like shares, bonds, or derivative contracts. Financial markets

can automate and simplify process intensive trading and servicing of financial instruments by articulating these contracts in code.

Smart Alternative contract

In the emerging IOT ecosystem, a new alternative type of smart contract that articulate and enforce incentives and payments is gaining relevance in machine to machine commerce. Shipment and delivery by drones, transactions between autonomous smart devices necessitate the execution of such contracts.

However smart alternative contract deployments at scale will require industrial grade regulation and performance.

Deployment Challenges and Considerations for Corporate Leaders

Blockchain based smart contracts are yet to be proven in the commercial realm. They depend on the underlying cryptocurrencies which are very volatile. Nodes are anonymous and regulation is scarce if any.

Distributed ledgers, such as Ripple and Hyperledger, are relatively compatible with existing regulations. These 'permissioned' ledgers are privately maintained by a small group, such as insurer, intermediaries and a network of health providers. Instead of anonymous nodes, legal entities are used to validate transactions. Smart contracts based on 'permissioned' ledgers can expect near-term adoption.

Other challenges with Blockchain smart contracts are scalability, flexibility, privacy, and latency. (Ethereum based verified transactions needs 17 seconds compared to milliseconds in case of traditional databases)

Smart contracts have enormous possibilities to drive efficiencies through automation and newer business models. Businesses need to evaluate how smart contracts suite their unique requirements. BOSGER's team of experts can help provide more information and guidance.

Business leaders who may not be closely following blockchain developments should consider examining the technology and evaluate how it can be paired with smart contracts to drive efficiencies or new business capabilities.

Operations executives should look to their own processes to evaluate where smart contracts may be applicable. Some factors to look for include complex and manual work flows, multiparty agreements, lack of trust between parties, and interdependent transactions. Likewise, ideating on new capabilities that could be made possible by smart contracts should be considered in the context of current strategy or innovation efforts.

Given that smart contracts represent a new model of computing, software development teams and IT leaders should consider exploring the implications of this approach. Implementing smart contracts on a blockchain will require significant integration work, and it will be important to understand the new protocols and considerations when evaluating these applications for the enterprise. - [John Ream](#), [Yang Chu](#), [David Schatsky](#) from Deloitte University Press

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End Notes

<https://dupress.deloitte.com/dup-us-en/focus/signals-for-strategists/using-blockchain-for-smart-contracts.html>

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