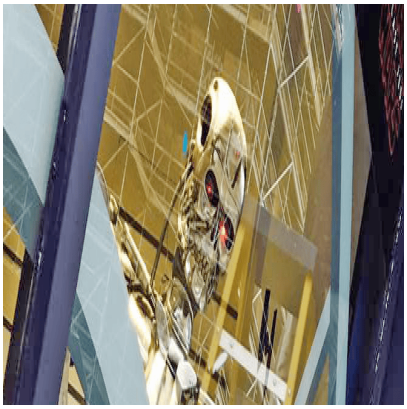


# How smart are smart contracts?

## Description

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Blockchain technologies such as bitcoin, support peer-to-peer monetary transactions, where lines in a shared ledger indicate payer, payee, date, amount and the goods or services to be exchanged: as is the case in a line in a bank statement.

But, instead of a text line indicating  the product being exchanged, what if that line included a piece of computer code that makes something happen in response to some trigger event?

The Ethereum blockchain platform (ethereum.org) supports the idea of transactions as code. An Ethereum ledger line can contain a â??smart contract,â?• an active piece of computer code that carries out some actions as part of  a blockchain transaction.

The signatories to the contract are anonymous, but the code, i.e. contract (or parts of it), can be seen by anyone on the public ledger. The visibility of the fact that parties have entered into an agreement keeps them honest.

Here are some (simple) possible code triggers: approval of the transaction by the blockchain, money transaction completed, a certain amount of time has elapsed or a date reached, time passed, the goods are at the optimal price for the purchaser, an item to be purchased is of a particular (approved) type (e.g. you can spend this bitcoin on food but not entertainment), the item in the transaction has been resold.

Here are some possible actions: the code prevents or enables certain transactions, funds received now get distributed to other parties, award a refund, impose a fee or fine, send an email, issue a private key that unlocks some data or service (e.g. entry to a building, the heating comes on, you can open the car door).

Hereâ??s a summary of the smart contract idea from Arun Sundararajan.

> â??the smart contract protocol can specify, as computer code, terms under which certain obligations are fulfilled, and can execute actions like sending a payment or deactivating a file once there is evidence of the contractâ??s terms being fulfilled. â?¦ the risks associated with peer-to-

peer contracting can be reduced by the introduction of three new provisions: autonomy, self-sufficiency, and decentralization.

Smart contracts are autonomous if after they are finalized, the initiating agents theoretically never need to have contact again. Smart contracts are also self-sufficient to the extent that they are able to marshal their own resources. Finally, smart contracts are decentralized; they are distributed across network nodes rather than residing in a centralized location, and are self-executingâ?• (93).

## 3D assets

Architects and other building professionals use contracts of course, and anything that applies to contracts applies to all the disciplines that use them. Imagine a series of contract variations in a blockchain.

A smart contract item can also be used to describe and visualise a parameterised building component (e.g. door, wall, staircase), with attendant actions, constraints and rules for use. The code in the contract could also indicate how agents can deploy, exchange, copy, reproduce or dispose of such digital assets.

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## Are contracts code?

To call such code a â??contractâ?• is perhaps misleading. Try as we might to be exact, contracts are ambiguous, contingent objects that fit particular situations. The automation of a complex contract implies that the contract code must account for every eventuality in the domain of application. Furthermore, peer-to-peer contracts will have to draw on expertise, or at least contract templates put together by people in the know. See The hermeneutical intractability of Asimovâ??s three laws of robotics.

## Bibliography

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- Sundararajan, Arun. 2016. *The Sharing Economy: The End of Employment and the Rise of Crowd-Based Capitalism*. Cambridge, MA: MIT Press

## Note

For a ludic approach to marriage contracts see

- Speed, Chris (ed.). 2016. Bodystorming the BlockChain. *Fields*, 3 September. Available online: http://chrisspeed.net/?p=1759 (accessed 28 August 2017).

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**Category**

1. Economics

**Tags**

1. blockchain
2. ciphercity
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